

The Bedfordshire Naturalist

THE JOURNAL OF THE
BEDFORDSHIRE
NATURAL HISTORY SOCIETY
FOR THE YEAR

1976

No. 31

Price One Pound

PUBLISHED BY THE
BEDFORDSHIRE NATURAL HISTORY SOCIETY

December 1977

BEDFORDSHIRE NATURAL HISTORY SOCIETY 1977

Chairman:

Mr. P. SMITH*, Rosebank Cottage, Church Road, Bow Brickhill,
Milton Keynes.

Honorary Secretary:

Mrs. E.B. RANDS*, 51 Wychwood Avenue, Luton, Beds.

Honorary Treasurer:

Mr. M. CHANDLER*, 19 Hillside Close, Shillington, Hitchin, Herts.

Honorary Programme Secretary:

Miss H.M. WEBB*, 4 St. Helena Road, Bedford.

Honorary Librarian and Membership Secretary:

Mr. R.B. STEPHENSON*, 17 Pentland Rise, Putnoe, Bedford.

Honorary Editors:

Mr. C.R. BOON* (Bedfordshire Naturalist), 7 Duck End Lane,
Maulden, Bedford.

Dr. J.G. DONY* (Bedfordshire Naturalist), 9 Stanton Road, Luton, Beds.

Mr. R.V.A. WAGSTAFF (Newsletter), 29 Grasmere Avenue, Luton, Beds.

Council (in addition to those marked with*):

Mr. V.W. Arnold
Mrs. B. Chandler
Mrs. F.B.M. Davies

Miss R. Daniels
Mr. W.J. Drayton
Mr. D. Green

Mr. T.S. Hollingworth
Mr. A.J. Martin
Dr. B.S. Nau

Committees appointed by Council:

Finance:

Mr. M. Chandler (Sec.)
Miss R. Daniels
Mr. D. Green

Dr. B.S. Nau
Mrs. E.B. Rands
Mr. R.B. Stephenson

Membership:

Mr. S. Cham
Mrs. B. Chandler
Mr. M. Chandler
Mr. W.J. Drayton

Mr. D. Green
Mrs. E. Hollingworth
Mr. A.J. Martin
Mr. D.G. Rands

Mr. R.B. Stephenson (Sec.)
Mr. R.V.A. Wagstaff
Miss H.M. Webb
Mr. R.J. Woolnough

Scientific:

Mr. D. Anderson
Mr. V.W. Arnold
Mr. C.R. Boon
Mrs. F.B.M. Davies

Dr. J.G. Dony
Mr. B.D. Harding
Mr. T.S. Hollingworth
Mr. J.P. Knowles
Mr. R.J. Woolnough

Dr. B.S. Nau (Sec.)
Mr. A.R. Outen
Mrs. E.B. Rands
Mr. J.J. Tirrell

THE BEDFORDSHIRE NATURALIST

No. 31 (1976)

Edited by C.R. BOON and J.G. DONY

CONTENTS

Officers of the Society	cover ii
Report of the Council	2
Report of the Treasurer	3
Statement of Accounts	4
Proceedings	6
A.G. Ford	8
Book Review	9
Meteorology – Report of the Recorder	10
Mammals – Report of the Recorder	13
Notes on some Species of Mammal present in Bedfordshire – D. Anderson, R.J. Woolnough	15
Birds – Report of the Recorder	19
The Decline of the Rook Population in Bedfordshire – A.J. Livett.	33
Bird Ringing in Maulden Wood – P.J. Wilkinson	39
Slugs and Snails – Report of the Recorder	42
Fish – Report of the Recorder.	43
Spiders in Bedfordshire – T.J. Thomas.	45
Dragonflies – Report of the Recorder	47
Grasshoppers and Crickets – Report of the Recorder	49
Bugs – Report of the Recorder	51
Butterflies and Moths – Report of the Recorder	58
Winter Moth Trapping in Maulden Wood – V.W. Arnold, A.J. Martin, D.G. Rands	59
Bees, Wasps, Ants etc. – Report of the Recorder	62
Ladybird Beetles – Report of the Recorder	63
Beetles in a Garden Light Trap – B.S. Nau Ph.D.	66
Woodlice, Centipedes and Millipedes – Report of the Recorder	68
Flowering Plants, Ferns and Fern Allies – Report of the Recorder.	75
Mosses and Liverworts – Report of the Recorder.	76
Lichens – Report of the Recorder	76
The Fungus Foray – D.A. Reid Ph.D.	77
Recorders	cover iii

REPORT OF THE COUNCIL

Following all the administrative changes that took place during 1975 the Council has been quietly getting used to new officers and the new committee structure during 1976. Our new Membership Secretary has now established a very workable system and this has, in turn, lightened the work load on the Treasurer, who in turn has been able to concentrate more fully on the purely financial aspects of the Society. The Finance Committee have worked consistently with him to try and keep our expenditure at a level where it would be unnecessary to increase the subscription, at least during 1977. One of our major money saving projects has been the hand delivery of as many Newsletters and 'Bedfordshire Naturalists' as possible. We would like to thank all members who have helped so willingly to distribute these items, either in their own areas or on their way to and from work across country. Any member who feels they can help in the future should contact either the Secretary or the Membership Secretary.

Our Editor, Mr. Roy Wagstaff, finds that due to increased work pressures he is unable to continue to edit the 'Bedfordshire Naturalist' but will continue to produce the Newsletter. We feel we owe him a special debt of gratitude for the increased excellence of the Journal and feel sure that his successors will do their best to maintain the high standard attained.

It was also with regret that we had to accept the resignation of Mr. Julian Knowles from his post as Programme Secretary in December 1976. He has been accepted as a candidate for the Open University and finds that the amount of work entailed, on top of teaching, leaves very little spare time. The summer programme for 1977 therefore will be produced by a working party, with Julian helping wherever possible.

On the membership side it is interesting to note that a total of 93 members joined the Society during 1976. This is nearly the same number that joined in 1975 but the membership has increased from 386 to 403 members. This is encouraging and means that our gains are at last exceeding our losses.

	1975	1976
Ordinary Members	263	271
Associate Members	41	49
Student Members	66	65
Corporate Members	8	9
Life Members	5	5
Honorary Life Members	3	4
	386	403

The above figures however do show very clearly that we have had a loss of 76 members as against the gain of 93. Some of these losses are perhaps due to lapses of memory where paying subscriptions are concerned, a large percentage is probably due to people joining for one year only (this happens in all societies) a few may be due to death, but many cannot be accounted for.

On the social side, the Christmas Social was a financial and social success. The showing of short cine films left welcome 'time over' for members to mingle and chat among themselves and renew old friendships. The coach trips have not been as popular as previously and smaller coaches have had to be ordered. This is due mainly to the dropping off in attendance by student members reaching the 'O' and 'A' level stages and not having time to spare from their studies.

The Student Section, as such, has reached a critical stage as the 'hard core' has almost reached the stage of being eligible for full membership. Although we have plenty of student members in the Society, many of them are very young, there are not many in the 14-16 year old group and there are even more who never communicate in any way.

The Society has continued to play a major role in active survey work for a number of outside bodies, seeking information on sites within the county. The Scientific Committee co-ordinates all this work and is also keeping a watching brief on all building applications and major work schemes in the county.

The Council wishes to thank all members for their support and especially those who have actively participated either by coming to meetings or by helping with the work of the Society.

E. BERYL RANDS

REPORT OF THE TREASURER

Another successful year with income exceeding expenditure by £561. However we received £434 in interest on our Deposit Account, which is mainly made up of the Theed Pearse Legacy, but we purchased a duplicator for £110, the current value of this now being represented in our fixed assets.

So if we now consider current income and expenditure we had a surplus of £27. This is in line with our current policy of a subscription fixed for three years – i.e. for the first year the level of the subscription will yield a profit, the second year we break even and the third year we have a loss about equal to the first year's profit. 1976 represents the middle year.

Comparing actual results with the Finance Committee's 1976 budgets, both income and expenditure were greater than forecast, but we now have this experience to assist us in future years.

Subscriptions were some £50, and surplus on meetings £90 more than forecast, this first represents the greater efficiency of having a Membership Secretary and the second the continuing loyalty of the members in supporting the special occasions.

On the expenditure side, the Newsletter cost more than expected, due to increasing costs of paper, but we now have some stocks for use in the current year. It is also felt that the Newsletter fulfils a valuable want in keeping the members fully informed and involved.

A sub-committee met to discuss the best use of the Theed Pearse Legacy and to advise Council and there have been further moves since then. Because of this uncertainty and the possible need to obtain some money quickly nothing has yet been done to re-invest any of our Deposit Account to obtain the higher rates of interest. As soon as the position is clear suitable action will be taken.

There has been a considerable saving to the Society in avoiding postage costs by hand-delivering as much mail as possible and our thanks go to our Secretary for organising this and to our members for the work involved in these deliveries.

The Income and Expenditure Account will in future be presented in a different form so that immediate comparisons with previous years will not always be possible, but this new format will simplify our budgeting and show our finances in greater detail for the benefit of Council, the committees and members.

M. CHANDLER

**INCOME & EXPENDITURE ACCOUNT
FOR THE YEAR ENDING 31st DECEMBER 1976**

Year to
31-12-75

£	£		£	£
INCOME				
SUBSCRIPTIONS				
643		Current year 1976		767
32-		Arrears 1975		-
611				767
OTHER INCOME				
	4	Donations & Collections	3	
	10	Sale of journals and atlas	70	
	48	Surplus on Coach trips and meetings	52	
	-	Surplus on Xmas Social	57	
	18	Profit on Coffee mornings	1	
	8	Sundries	11	
	31	Refund from Publicity Committee	-	
	4	Sale of pens	-	
	-	Drinkmaster	8	
123	-	Warden Hills	65	267
INTEREST				
	157	Interest on Deposit Account	434	
333	176	Interest on City of Peterborough Bonds	-	434
1067		Total Income		1468
EXPENDITURE				
ADMINISTRATION				
	45	Stationery	145	
	70	Postage	94	
	-	Advertising	24	
	10	Insurance	13	
	22	Auditors Fee	20	
	1	Sundries	7	
148				303
MEETINGS				
	47	Hire of Hall	104	
	3	Lecturers Fees and Expenses	25	
	45	Printing of Programmes	59	
	27	Loss of Lectures	-	
	-	Equipment Hire	7	
122				195
SOCIETY PUBLICATIONS				
	152	Printing Journal	221	
	-	Printing literature	35	
	-	Brochures	56	
152				312

MISCELLANEOUS		
30	Subscriptions to other Societies	16
—	Depreciation of Equipment at 10% on cost	17
—	Recorders Expenses	6
—	Warden Hills	31
—	Drinkmaster	27
30		97
452	TOTAL EXPENDITURE	907
£615	EXCESS OF INCOME OVER EXPENDITURE	£561

BALANCE SHEET AS AT 31st DECEMBER 1976Year to
31-12-75

£	£	£	£	£
			Cost	Deprec.
	FIXED ASSETS			
35	Books and Journals	35	—	35
10	O.S. Maps	10	—	10
8	Bird Song Records	8	—	8
15	Display Boards	15	—	15
15	Microscope	15	—	15
3	Tools	3	—	3
2	Screen	2	—	2
60	Slide Projector	60	6	54
—	Duplicator and stand	110	11	99
148		258	17	241
	CURRENT ASSETS			
81	Bank Account		17	
4215	Deposit Account		6649	
16	Cash in Hand		54	
2000	City of Peterborough Bonds		—	
61-	Debtors (1977 Subs. in advance)		3	
6251				6717
6399				6958
	CURRENT LIABILITIES			
22	Creditors		20	
22				20
6377	NET ASSETS			6938
	REPRESENTED BY CAPITAL ACCOUNTS			
1066	Balance Brought Forward			1809
68	Capital introduced — Refund on Income Tax			—
60	Capital Introduced			—
615	Excess of Income over Expenditure			561
1809				2370
4568	Theed Pearce Legacy			4568
6377				6938

O Morgan S M Cross Honorary Directors

PROCEEDINGS

Indoor Meetings

347th ORDINARY MEETING, 8th January, Bedford. "Poisonous Plants" by Mr. P. Stainton. Chairman: Miss R. Smart.

348th ORDINARY MEETING, 15th January, Ampthill. "Introduction to Grasshoppers and Crickets" by Mr. D.G. Rands. "British Wild Orchids" by Mr. A.G. Ford. Chairman: Mrs. E.B. Rands.

PUBLIC FILM SHOW, 20th January, Luton. "Bird Life in the Pennines". "Fish or Fowl." In conjunction with The Wildfowl Trust.

349th ORDINARY MEETING, 29th January, Dunstable. "Tring Reservoirs National Nature Reserve" by Mr. R.V.A. Wagstaff. Chairman: Mr. W.J. Drayton.

350th ORDINARY MEETING, 6th February, Luton. "The Work of Bedfordshire's Forestry Officer" by Mr. J.R.A. Niles. Chairman: Mr. R.J. Woolnough.

BARBECUE AND SOCIAL EVENING, 7th February, Maulden Wood.

351st ORDINARY MEETING, 12th February, Bedford. "Lundy" by Mr. N. Dymond, ex Warden of Lundy Island and now Warden for R.S.P.B., Sandy Lodge. Chairman: Mrs E.B. Rands.

352nd ORDINARY MEETING, 25th February, Dunstable. "Watching Badgers" by Mr. C. Banks. "A Piece of String" by Mr. T.J. Thomas. Chairman: Mr. D. Anderson.

353rd ORDINARY MEETING, 4th March, Bedford. "Ouse, Song and Signs" by Mr. J.P. Knowles. Chairman: Miss H.M. Webb.

354th ORDINARY MEETING, 9th March, Dunstable. "Owl Pellets" by Mr. C. Nicholson, Assistant Development Officer of the R.S.P.B. Chairman: Mrs. B. Chandler.

355th ORDINARY MEETING, 15th March, Luton. "An Introduction to Lichens" by Mrs. F.B.M. Davies. Chairman: Dr. J.G. Dony.

ANNUAL GENERAL MEETING, 25th March, Bedford.

356th ORDINARY MEETING, 7th April, Dunstable. "Bedfordshire Wetlands and their Vegetation" by Dr. J.G. Dony. Chairman: Dr. B.S. Nau.

BARBECUE AND SOCIAL EVENING, 18th September, Maulden Wood.

SPECIAL GENERAL MEETING, 7th October, Ampthill. B.N.H.S. Rules. Chairman: Mr. P. Smith.

357th ORDINARY MEETING, 14th October, Bedford. "Bird-watching in North America" by Mr. P. Smith. Chairman: Mr. R.B. Stephenson.

SPECIAL MEETING, 20th October, Biggleswade. "Some Aspects of Natural History" by Mr. J.P. Knowles and Mr. D. Fisher. Chairman: Mrs. E.B. Rands.

358th ORDINARY MEETING, 26th October, Dunstable. "An Introduction to Plant Galls" by Mrs. E.B. Rands. Chairman: Dr. B.S. Nau.

359th ORDINARY MEETING, 2nd November, Ampthill. "The Flora and Fauna of Studham" by The Students. Chairman: Mr. D. Green.

360th ORDINARY MEETING, 12th November, Luton. "Looking for Shells in Florida" by Mr. S.P. Dance. Chairman: Mrs. E.B. Rands.

361st ORDINARY MEETING, 23rd November, Dunstable. "Mammal Species introduced into Britain" by Mr. B.F. Barton and Mr. C. Banks. Chairman: Mr. J.P. Knowles.

362nd ORDINARY MEETING, 30th November, Ampthill. "The World of Butterflies and Moths" by Mr. A.J. Martin. Chairman: Mr. V.W. Arnold.

363rd ORDINARY MEETING, 10th December, Luton. "Farming in Bedfordshire" by Mr. P.H. Shaw. Chairman: Mr. A.G. Ford.

364th ORDINARY MEETING, 15th December, Bedford. "Wild Life and the Artist" by Mr. P. Merrin. Chairman: Mrs. B. Chandler.

GRAND CHRISTMAS SOCIAL EVENING, 17th December, Bedford.

Field Meetings

25th January	CHICHESTER AREA. Coach trip to see wintering birds.
1st February	TRING RESERVOIRS. To see wintering wildfowl and gull roosts. Leader: Mr. R.V.A. Wagstaff.
28/29th February	YORKSHIRE. Attempt to see Mountain Hares. Leader: Mr. C. Banks.
14th March	ROWNEY WARREN. Leader: Mr. J.M. Green.
25th April	KNAPWELL AND HAYLEY WOOD, CAMBS. Oxlips and general natural history. Leader: Mr. A.G. Ford.
1st/2nd May	DELL FARM, WHIPNADE. Residential weekend.
9th May	COTSWOLDS. Coach Tour.
16th May	BROGBOROUGH BRICK PITS. Migrant and breeding birds, Leader: Mr. B.D. Harding.
20th May	CHICKSANDS WOOD. Birds in a Forestry Commission woodland. Leader: Mr. B.D. Harding.
26th May	WREST PARK, SILSOE. General natural history in ornamental gardens. Leader: Mr. J.P. Knowles.
27th May	MOWSBURY HILL, BEDFORD. General natural history. Leader: Mr. H.A.S. Key.
30th May	MARKHAM HILLS, STREATLEY. Natural history of a chalk escarpment. Leaders: Mr. A.G. Ford
3rd June	BEDFORD RIVERSIDE. Botanical evening. Leader: Dr. J.G. Dony.
5th June	CHARLE WOOD, WOBURN. Woodland breeding birds. Leader: Mr. P. Smith.
6th June	STEWARTBY. General natural history of a disused brick pit. Leader: Mr. D. Green.
8th June	MARSTON THRIFT. General natural history and moth trapping. Leader: Mr. R.J. Woolnough.
13th June	WICKEN FEN, CAMBS. Leader: Mr. M. Chandler.
17th June	BROMHAM MILL. General natural history and moth trapping. Leaders: Mr. H.A.S. Key and Mr. W.J. Champkin.
20th June	WALBERSWICK AREA, SUFFOLK. Coach trip.
22nd June	WARDEN AND GALLEY HILLS, LUTON. General natural history of chalk downland. Leader: Mr. V.W. Arnold.
26/27th June	MAULDEN WOOD. All night meeting.
4th July	KEW GARDENS, LONDON. Coach trip.
6th July	OLD WARDEN TUNNEL. Visit to a Beds. and Hunts. Naturalists Trust Reserve on a disused railway line. Leader: Mr. J.M. Green.
9/11th July	PEAK DISTRICT. Camping weekend.
14th July	KEMPSTON. Riverside natural history and bat catching. Leader: Dr. B.S. Nau.
18th July	AMPTHILL PARK. Joint meeting with Hertfordshire N.H.S. Leader: Dr. J.G. Dony.
8th August	COLWORTH HOUSE, SHARNBROOK. Natural history of the estate by kind permission of Unilever Ltd.
18th August	SEWELL. General natural history of a disused railway line and chalk pits. Leader: Mr. W.J. Drayton.
21st August	PEGSDON HILLS. General natural history of chalk downland. Leader: Mr. A.G. Ford.
28th August	WILSTEAD WOOD. General natural history. Leader: Mr. D.G. Rands.

5th September	MAULDEN WOOD OPEN DAY. By kind permission of the Forestry Commission.
19th September	FLITWICK MOOR. Introduction to fungi. Leader: Mr. M. Chandler.
26th September	SHUTTLEWORTH COLLEGE. Fungus foray. Joint meeting with the British Mycological Society. Leader: Dr. D.A. Reid.
10th October	WESTONBIRT ARBORETUM, GLOS. Coach trip.
24th October	KINGS WOOD, HOUGHTON CONQUEST. Autumn nuts, fruit and fungi. Leader: Mr. J.R.A. Niles.
31st October	POTTON WOOD. Fungus foray.
5th December	ESSEX ESTUARIES. Coach trip.
19th December	FLITWICK MOOR. Leaders: Mr. M. Chandler and Mr. J.P. Knowles.

Student Meetings

- 5th October, Ampthill. "Butterflies and Moths" by Mr. A.J. Martin.
 Chairman: Mr. M.K. Bierton.
- 15th/17th October, STUDHAM, Camping weekend.
- 3rd November, Ampthill. "Badgers and Bats" by Mr. D. Anderson.
 Chairman: Miss S. Green.
- 2nd December, Ampthill. "Pond Life" by Miss M.E. Tilstone. Chairman:
 Mr. R.E. Wyatt.

Alfred G. Ford (1912-1977)

Alf, as he was known to his many fellow naturalists, lived all his life in Luton. A heating engineer by trade he was well known in almost all of the many and mainly small factories in the hat industry in which heating appliances were an essential. The decline of the industry caused him in the last few years of his life to go into business on his own extending the scope of his work. A few months before his death he retired looking forward to devoting the rest of his life to the study of natural history, an interest he had acquired comparatively recently.

It was eight years ago that I first met him when, overjoyed with the sheer beauty of wild orchids, he was anxious to know where more grew and to photograph them. One generally views such requests with some suspicion but it was at once obvious that Alf was a man to be trusted since his one desire was to protect the plants which he had come so much to love. Eventually he was to see nearly all the British wild orchids taking coloured slides which few have equalled. He was soon to join our society where his friendliness endeared him to all. Anyone who heard his talks on his beloved orchids could not help but be inspired by his enthusiasm. Other societies for some distance away called on him to give similar lectures and lead field meetings. He sat on our Council for a brief period but being a member of a committee was alien to his nature. Instead every newcomer had a friendly word from him and children felt immediately at home in his company.

While orchids continued to interest him it was not long before he turned his attention to fungi the intricacies of which he soon mastered. Had he lived longer there can be no doubt that he would have become an authority on these plants.

He will be much missed by all who knew him and to his wife, Phyllis, who was so much a partner in all that Alf did, and to his immediate family the society as a whole extends its deepest sympathy.

J.G. DONY

A Nature Conservation Review. By D.A. Ratcliffe (Editor). Cambridge University Press for the Nature Conservancy Council (1977). Price £60.

This long awaited work which is in two volumes was initiated in 1965 by the Nature Conservancy before its division four years ago into the Institute of Terrestrial Ecology and the Nature Conservancy Council. It sets out clearly the criteria which must be considered in determining which sites in Great Britain are most worthy of conserving for the wealth of their natural life and for their ecological value. Using these criteria a total of 735 sites are listed more than a half being Grade 1 sites of prime importance, a few of these being noted as of international importance. The remainder are Grade 2 sites of secondary importance or as alternatives to Grade 1 sites since it is realised that not all the sites can be conserved. The sites as a whole are divided into six broad groups of woodlands, grasslands, etc. the accounts of which were delegated to various members of the Nature Conservancy. The review is a monumental work which will be of concern to everyone and to nature lovers in particular.

Many will be anxious to know how their own county has fared in this exercise fully realising that some parts of Britain are of greater natural history interest than others. Bedfordshire, a small county having about 0.5% of the area of Great Britain, could, if the sites were evenly distributed, except to be credited with three or four. It has three and as it is not outstanding in its natural history interest there is no cause for complaint. Knocking Hoe, our only National Nature Reserve, and our beautiful Barton Hills are Grade 1 sites and it is interesting to reflect that as long ago as 1915 Charles Rothschild in a pioneer survey noted the chalk escarpment east of Sharpenhoe as the area in the county most worthy of conserving. Our third site, a Grade 2 one, is Kings Wood, Heath and Reach, and Bakers Wood. In 1949 we as a society completed our own assessment of sites of natural history interest in the county listing two, Knocking Hoe and Flitwick Moor, as of national importance and ten of great local importance. These included Kings Wood and Bakers Wood which we listed as two sites and Barton Hills. During the last 30 years Flitwick Moor has suffered badly following a lowering of the water table but its deterioration has been checked by the Bedfordshire and Huntingdonshire Naturalists' Trust. Kings Wood has for other reasons lost some of its earlier interest but it is obvious that our task was not in vain.

We are curious to know how our neighbours have fared and find that Hertfordshire, a larger county and one would have thought of a greater natural history interest, has also three sites but with an even distribution it could have expected five. Tring Reservoirs, the county's only National Nature Reserve, and Wormley Wood, intended to be a similar reserve when the Nature Conservancy was formed in 1947, are Grade 1 sites while Therfield Heath is added as a Grade 2 site. In pursuing this quest further one meets an annoying feature of the review as the sites are given in the counties in which they were before the re-organisation of local government in 1974. It would have been a simple exercise to place them in their present counties which the Nature Conservancy Council itself uses as the basis of its regional organisation. Instead we have the county of Huntingdon and Peterborough which had little more than an overnight's existence. It was about the same size as Bedfordshire is and apart from a few well known sites had little to commend it for its natural history interest. It has no fewer than nine sites some of which cause much astonishment. We are left with an impression that most of the 735 sites are listed because they were well known to and documented by the members of the staff of the Nature Conservancy. These were few in number and in the circumstances there was little else that could have been done. Naturalists may now regret that having had ample time to do so they have not drawn more attention to and made full documentation of precious sites known only to them. It is to be hoped that we shall not have to wait another 30 years for a second review and that when it appears its price will be lower than the one we now have.

REPORT OF THE RECORDER FOR METEOROLOGY

THE WEATHER OF 1976

The concurrence of severe drought and high maximum temperatures during the summer months of 1976 was probably unparalleled during the two and a half centuries for which reliable weather records exist. Two years ago, this annual summary gave details of an unusually dry period which persisted from June 1972 until the end of June 1974 (*Bedf.Nat.* 29: 15,17). A second and more severe drought which began in mid-May 1975 had thus already existed for seven and a half months by the beginning of January 1976 and continued to worsen as the year progressed.

Records based on the calendar year often mask long-term weather tendencies. In the present instance, the rainfall for the 12 months ending 30th September 1976 was, at Cardington, 288 mm (11.34 inches) and, at Luton, 375 mm (14.76 inches); both these figures are little more than one-half of the average and, perhaps, the lowest ever recorded in the district. The nearest approach to the Cardington figure in the present century was the 322 mm recorded at Great Barford for the 12 months ending 30th September 1921.

Equally exceptional were the maximum temperatures reached for long continuous periods during the summer, when a succession of very stable anticyclones remained almost stationary over the southeast of the country causing huge stagnant 'puddles' of hot air to build up and intensify. The period of most intense heat lasted from 22nd June until 15th July — 24 days on 10 of which the temperature exceeded 32 deg.C. (approx. 90 deg.F.) and with the remainder all exceeding 27 deg.C. (approx. 81 deg.F.).

The weather pattern changed abruptly during the third week of September and, thereafter, the last four months of the year received as much rain as the preceding twelve. The net result for the whole year was a rainfall of about 75 to 80% of average for most stations.

RAINFALL

Rainfall for each of the first eight months of the year was below average, February, June and August having particularly scanty totals. August, normally the wettest month of the year on average in this district, was by far the driest; Silsoe recorded only 3.5 mm, Husborne Crawley 7mm and Cardington 9.7 mm. At Silsoe there was no measurable rain for the 36 days from 21st July to 25th August, and both Cardington and Luton had less than 1 mm in the same period. Strangely enough, there was no other period of official drought during the year, although Cardington came near it (13 days from 21st June to 3rd July).

Contrary to some popular beliefs (and press statements) the autumn was *not* the wettest in living memory in this district; it was easily surpassed in this respect by 1960 and 1935. Nevertheless, the persistence of the autumn rains was especially remarkable in the south of the county; Luton had 91 wet days out of the 101 between 22nd September and the end of the year.

The wettest day of the year was 15th/16th July (see below).

SNOW

Snow occurred on only 6 days of the year in Bedford, the heaviest fall on 17th December, gradually turning to rain. At Cardington, this was the second wettest day of the year, with 16.7 mm of mixed snow, sleet and rain. Luton recorded only 11.7 mm.

THUNDER

Despite the intense heat in the summer months, thunder was heard on only 8 occasions during the year. The prolonged storm on the night of 15th/16th July gave 27 mm of rain at Dunstable, 25.4 mm at Luton and 21.8 mm at Cardington during the 24-hour period. A rather local storm on 25th September gave 16 mm at Cardington, but precisely nothing in north Bedford!

TEMPERATURE

Our usual mean temperature for the whole year is about 9.5 deg.C. (approx. 49 deg.F.) and one would have thought that the exceptional heat of the summer would have resulted in a much higher mean figure than usual. It is surprising to find how little, in fact, the mean was raised – only by a fraction of a degree, to 9.85 deg.C. (49.73 deg.F.)

The warmest day of the year was everywhere 26th June, by a very small margin, the official maximum at Cardington reaching 34.2 deg.C (93.6 deg.F.) with the 27th June and 3rd July very nearly as hot. Higher figures than these were quoted for the Bedford area (up to 97 deg.F.) but are unreliable without verification of the instruments used and conformity with standard methods of exposure.

The coldest day was 30th January, on which the temperature never exceeded freezing-point. The coldest night was that of 28th/29th December with a minimum of – 7 deg.C. or 12.6 deg. of frost F.

PRESSURE

A remarkably high barometric reading occurred on 19th November of over 30.5 in. Hg. (1030 mb), whereas, a fortnight later, the pressure remained below 29 in. Hg. for two days.

WIND

A feature of the first four months of the year was the predominance of easterly and northerly winds; the second half of April, for example, had continuous east winds.

January was, by far, the windiest month of the whole year; considerable material damage was done by the storm-force winds on the evening of the 2nd, when a gust of 96 miles an hour was recorded at Cardington. This was the highest figure there since the gale of 16th March 1947, following the 'great thaw' (*Bedf. Nat.* 2:17).

SUNSHINE

As might be expected, the sunshine figures for the three summer months were all remarkably above average by no less than 30 per cent. The remainder of the year, however, was deficient in this respect, particularly February and October, the latter month having considerably less than one-half of the normal. The net result for the year as a whole differed only slightly from average. Although these readings were taken at Husborne Crawley, they are likely to be representative of other parts of the county in such a year as 1976.

RAINFALL FOR 1976

	Bedford	Cardington	Dunstable	Husborne Crawley
January	21.7	19.6	27.4	24
February	11.2	11.6	20.1	17
March	21.3	18.2	19.3	19
April	16.2	17.1	20.0	16
May	28.5	31.2	31.2	28
June	(12.7)	10.9	18.5	14
July	22.1	26.1	31.7	24
August	19.5	9.7	—	7
September	77.9	67.4	—	93
October	95.9	92.8	—	108
November	43.3	45.1	—	50
December	79.2	85.1	—	98
Total mm (1975)	(449.5) 501.1	434.8 496.5	—* 573.9	498 589

	Luton	Sandy	Silsoe
January	26.8	63.8	22.0
February	21.2	9.9	14.2
March	22.1	16.5	13.5
April	19.5	18.3	18.5
May	33.5	29.2	27.0
June	16.9	14.2	10.2
July	35.6	27.9	33.4
August	11.0	15.2	3.5
September	89.6	86.6	75.3
October	125.3	94.0	91.5
November	63.2	49.3	49.9
December	98.2	71.9	87.7
Total mm (1975)	562.9 603.7	496.8 581.9	447.3 462.3

*Gauge inoperative due to vandalism

Bedford (Chaucer Road): Dr. D.M. Jeffreys
 Cardington (M.o.D.): Per Mr. L.A. Speed
 Dunstable (Periwinkle Road): Per Mr. K.J. Reynolds, Lee Valley Water Co.
 Husborne Crawley (Woburn Experimental Farm): Rothamsted Experimental
 Station, Report for 1976.
 Luton (Runley Wood): Lee Valley Water Company.
 Sandy (R.S.P.B., Sandy Lodge): Per Mr. A. Parker, Warden.
 Silsoe (N.I.A.E., Wrest Park): Per Mr. A. Hunter, Control Department.

REPORT OF THE RECORDER FOR MAMMALS (Mammalia)

Every year that I have made this mammal report I say that to obtain a new species for the following year would be increasingly unlikely, but so far each year has included at least one new species. 1976 was no exception, for in May the body of a dead male Barbastelle Bat was found in Shuttleworth Estate by the Greens – father and son. This bat had not been recorded in Bedfordshire since 1901, when one was picked up alive in Bedford. The Barbastelle is one of Britain's rarer bats, so it is very exciting to find it is present in Bedfordshire. (It has, so far, not been recorded in Hertfordshire). All we need to know now is where it is living and in what numbers!

For the rest of the mammal species 1976 has also been a good recording year, with new records for 27 species. This leaves eight species without new records that have been recorded in Bedfordshire since 1971. One of these species, the Daubenton's Bat was caught in its previous location, but of the other species (Natterer's and Noctule Bats, Dormouse and Fat Dormouse, Yellow-necked Mouse, Otter and Red Deer) no confirmation was obtained of their existence in the county. However, no particular action was taken to try to obtain this information, so it does not mean they are no longer present. The total new tetrad records for all species was 273 (301 in 1975) and new 10 Km. square records were 32 (31 in 1975). The species having the most new records were Fox (25 new tets.) Harvest Mouse (23 tets.), Brown Hare (20 tets.) and Badger (18 tets.). It is good to see the Badger and Harvest Mouse being so well recorded, as only two or so years ago I was reporting how under-recorded they were, and in need of effort being put their way. The most recorded species by tetrads, on total addition since 1971 are: – Rabbit (255 tets.), Mole (168 tets.), Brown Hare (166 tets.), Hedgehog (161 tets.), Brown Rat (140 tets.), and Grey Squirrel (116 tets.). This is really the order you would expect and has no surprises, the bottom of the list is equally understandable with: – Barbastelle, Daubenton's and Natterer's Bats, Dormouse, Fat Dormouse and Otter all with only one tetrad record each.

New records sent to the Biological Records Centre at Monks Wood, who record nationally by 10 Km squares, were 28. This compares with 67 in 1975.

In the Society's Newsletter, for January 1977 I made some comments about the rate of obtaining new records. To determine this rate, a graph is drawn of year against total records obtained. The resulting line is extrapolated out to the level of the total obtainable number of records. I said in the Newsletter that the line produced was a straight line, and this year's results fall on this line. This shows that we are neither increasing nor decreasing in the rate of obtaining new records, and when you consider that new records must be increasingly hard to obtain, people must in fact be working harder or getting better at their field work. It is a sign of the work still to be done that the graphs show that we only have half of the possible 10 Km. square records and a mere 15% of the possible tetrad records. Of course, these figures are for all species. Some of the commoner species are better recorded, and most of the rare species are less well recorded.

The level of field work on mammals has been high in 1976, as the above remarks show.

My thanks go to all the 30 people who supplied records, five of whom are non-members of the Society. The most popular species for mammal work now seems to be the Badger, with lots of new sets being found, mapped and watched. This is very encouraging and I would like to congratulate Richard Woolnough and all his co-workers, particularly John Green for his work in the much ignored north of the county. I would also thank Derek Rands for his continuing work on the Harvest Mouse in the county. His results can be seen from the increasing level of records for this species on our maps. Work has also been done on small

mammals, mainly through owl pellets and bottle remains. I hope to be able to increase the use of small mammal trapping in the coming years, by making traps available on loan to any person wishing to use them. This I hope will encourage more people to learn and contribute to this area of our mammal knowledge.

As a result of many members requesting that all new tetrad records be listed in this report, so that distribution maps published in the 1974 'Journal' can be updated, they are shown below:—

- Hedgehog *Erinaceus europaeus* — 8 tetrads
92Q, 95ST, 04BJ, 05UX, 131.
- Mole *Talpa europaea* — 15 tetrads
93UX, 94KS, 95FG, 96L, 03N, 05UZ, 06K, 13M, 15ER, 24J.
- Common Shrew *Sorex araneus* — 10 tetrads
95G, 01EH, 03I, 05V, 06R, 14A, 23I, 24LS.
- Pygmy Shrew *Sorex minutus* — tetrads
01H, 03NV, 04V, 05M, 14A, 15W.
- Water Shrew *Neomys fodiens* — 1 tetrad
05M.
- Bat — 10 tetrads
91Z, 92N, 93Q, 95U, 01EU, 02AY, 03N, 11I.
- Barbastelle Bat *Barbastella barbastella* — 1 tetrad
14H.
- Long-eared Bat *Plecotus auritus* — 1 tetrad
02G.
- Pipistrelle Bat *Pipistrellus pipistrellus* — 7 tetrads
92Y, 93Q, 95L, 03J, 11I, 14E, 15A.
- Rabbit *Oryctolagus cuniculus* — 17 tetrads
93VY, 94S, 01C, 04F, 05UXZ, 06RS, 13B, 15DIS, 24LST.
- Brown Hare *Lepus capensis* — 20 tetrads
93FZ, 94L, 95L, 02S, 03CFNW, 04A, 05U, 06MR, 13A, 15IW, 23CJ, 24LS.
- Bank Vole *Clethrionomys glareolus* — 12 tetrads
93Z, 01EH, 02U, 03Y, 04V, 05M, 13C, 14A, 15IW, 24L.
- Short-tailed Vole *Microtus agrestis* — 10 tetrads
02AR, 03RTX, 05M, 15W, 24DLS.
- Water Vole *Arvicola amphibius* — 10 tetrads
93U, 03NY, 04Z, 05BD, 13E, 15IR, 24S.
- Harvest Mouse *Micromys minutus* — 23 tetrads
93U, 02PU, 03IZ, 04BFKQV, 05DSX, 06X, 13IZ, 14L, 15IV, 16A, 23I, 24P, 25K.
- House Mouse *Mus musculus* — 9 tetrads
02A, 05MX, 14H, 15RW, 23I, 24LS.
- Wood Mouse *Apodemus sylvaticus* — 11 tetrads
94K, 01EHU, 02A, 03Z, 04V, 05M, 15E, 24LS.
- Brown Rat *Rattus norvegicus* — 12 tetrads
94S, 95Q, 01U, 03BM, 05M, 14KV, 15EKR, 24S.
- Grey Squirrel *Sciurus carolinensis* — 10 tetrads
93F, 95L, 01U, 02BMN, 05UV, 13J, 24F.
- Fox *Vulpes vulpes* — 25 tetrads
92BCIQ, 94W, 01E, 02AP, 03AM, 04K, 05BEHY, 06LMR, 15W, 16AF, 24AJST.
- Badger *Meles meles* — 18 tetrads
95T, 01H, 02G, 03ATU, 04Q, 05NU, 06KRS, 12A, 13F, 15IVW, 25Q.
- Ferret — 3 tetrads
01P, 05V, 12A
- Stoat *Mustela erminea* — 9 tetrads
93RY, 03C, 04A, 05D, 06F, 14W, 15W, 24F.

- Weasel *Mustela nivalis* – 9 tetrads
 94K, 01HU, 03K, 04F, 05D, 13I, 15Q, 24S.
 Chinese Water Deer *Hydropotes inermis* – 3 tetrads
 02CD, 03D.
 Fallow Deer *Dama dama* – 2 tetrads
 01E, 25K.
 Muntjac Deer *Muntiacus reevesi* – 10 tetrads
 93F, 95F, 02A, 03CS, 04Q, 06T, 16AF, 24S.

I trust that you will all get out in the field in 1977 and work and look at mammals. There are already reports of a possible new species for the county being about, so again the year holds promise of an exciting and interesting time. If anyone would like help or advice on mammal identification or watching, please contact me.

May I request that you all try to get your name in the list of contributors for 1977. My thanks again to those that have supplied records for 1976, their names being listed below:—

D. Anderson, C. Banks, B.F. Barton, B. Brown, C.W. Burton, C. Carpenter, B.M. Clutton, R. Cooke, F.B.M. Davies, P.F. Davis, N. Dawson, J. Gaffney, J.M. Green, M. Green, B.D. Harding, J. Harris, C. Hill, T.S. Hollingworth, D.J. King, D.P. Lawrence, H.J.M. Messer, B.J. Nightingale, D.A. Peterkin, E.B. Rands, D.G. Rands, M.R. Seaman, A. Summerfield, T.J. Thomas, R.V.A. Wagstaff, R.J. Woolnough.

DAVID ANDERSON

NOTES ON SOME SPECIES OF MAMMAL PRESENT IN BEDFORDSHIRE

by D. Anderson, Recorder for Mammals, and R.J. Woolnough, 83 Tring Road, Dunstable

The annual reports of the Recorder for Mammals present information only on the distribution by tetrads and the density of each species present in Bedfordshire. This paper has been prepared to give information of a more general nature such as the behaviour, food preferences and the relationship to man of some of the species dealt with in the reports. It is hoped that it will cause members to consider more their own field work, confirm their findings and suggest suitable areas for future observation.

Hedgehog (*Erinaceus europaeus*). The main source of records is from road casualties — the car must now be an important controlling factor of the hedgehog population but it is feared that the destruction of hedgerows and the widespread use of insecticides also take their toll. On the positive side they have very successfully colonised urban gardens where they are the gardeners' ally. Some gamekeepers still consider them worthwhile killing as they have been reported from gibbets at Tempsford, Old Warden and Haynes Park, the price they pay for eating birds' eggs. The most deadly natural predator used to be the polecat, widespread in Bedfordshire until gamekeeping became common in the late nineteenth century but now extinct. We have no evidence of feral ferrets taking hedgehogs. Hedgehog skins have been found in spoil heaps outside badger setts at Blows Downs and Houghton Regis and spines were found in an analysis of dung from Potton. Foxes are known predators and magpies are thought to attack them. They are also particularly at risk when hibernating but despite all this they are widespread and numerous in the county.

Mole (*Talpa europaea*). Molehills provide most of the records and this gives rise to an interesting feature of the map showing their distribution. They are well recorded on the greensand despite the fact that the staple diet of the mole, the earthworm, is not abundant in sandy soils. On these soils the moles that are present are continuously trying to excavate new runs to provide an adequate supply of earthworms and this is what our members record. Conversely on clay some runs may last for many years without needing re-excavating so although moles are present they may not be recorded. Dead moles have been recorded above ground in Chicksands, Potton and Maulden Woods and this may reflect the fact that moles come above ground at night much more than is realised, especially in dry weather to eat insects when earthworms are not readily available.

Shrews. The species are active both day and night when they are more often heard than seen although their high-pitched chattering is very near to the upper limit of the human ear. The Common Shrew (*Sorex araneus*) is the species most frequently found dead in discarded empty bottles, John Green holding the record of finding 13 in one bottle at Tempsford and 15 in another at Potton. One must assume that after the initial death the others are attracted into the bottle by their rotting relatives. Common shrews are distasteful to most predatory mammals but owls are not so particular and the red-tipped teeth of common shrews are often found in owl pellets. The Pygmy Shrew (*Sorex minutus*) is a less common species but has a wide distribution. The Water Shrew (*Neomys fodiens*) is rarely seen but has been found in a bottle at Potton and remains of it in an owl pellet at Houghton Regis chalkpit. It lives alongside water where it nests in small burrows in the banks. It swims well under water where it catches its insect food.

Bats. It is virtually impossible to identify any of the various species in flight so records are restricted to the finding of dead bodies, visiting known roosts and, in recent years, netting which requires both patience and skill. Clive Banks is probably the only person in the county capable of handling the bats when they have been caught. Netting has provided more bat records than all other means. Daubenton's Bat (*Myotis daubentoni*) feeds by taking prey off the surface of water, being the only species of bat to do this regularly. Specimens have been caught on Ampthill Park Lake and on a small pond on the Ampthill - Woburn road. It is probably more widespread but poses particular netting problems. Long-eared Bat (*Placotus auritus*) is the second most well-recorded bat in the county. It has not been netted but this is almost certainly due to its feeding habits as it hovers close to trees and bushes plucking its prey from the foliage. Records come from roosts in the lofts of houses and from dead bodies. One dead body of *Barbastella* (*Barbastella barbastella*) has been found at Old Warden Park. This is a rare bat in the whole of England, and found mainly in the southern counties so Bedfordshire is at the limit of its distribution. A single specimen of Natterer's Bat (*Selysius nattereri*) was caught along the edge of a line of trees near the lake in Ampthill Park this being the only record for the county since 1901 when one was 'obtained' at Turvey. The Noctule (*Nyctalus noctula*) is a large, fast high-flying bat being often the first bat to be seen in the evening. It has been caught on the Ouse and on Luton rubbish dump but is much more often present flying too high to net. The Pipistrelle (*Pipistrellus pipistrellus*) is the most recorded and undoubtedly the most common bat in the county. It is found in a wide variety of habitats - river, woodland, farmland, around houses - and roosts in large numbers in houses, 430 at Willington, 114 at Stevington, in both cases in houses less than ten years old.

Rabbit (*Oryctolagus cuniculus*). This is the most recorded mammal in the county. Myxomatosis is still present in local outbreaks but seems almost ineffective in controlling rabbit numbers as in many areas the populations now seem back to pre-myxomatosis levels. Colour variations are recorded from Dunstable Sewage Works (black) and Eggington (ginger).

Dormouse (*Muscardinus avellanarius*). This is known from only one site in

the county but has almost certainly been overlooked elsewhere. It has a characteristic method of opening hazel nuts which can be used as a means of proving its presence.

Edible Dormouse (*Glis glis*). Care must be taken not to confuse this species with the grey squirrel. The only current record for it in the county is from Sandy where it is not thought to be an extension from the original colony at Tring where it was introduced by Lord Rothschild in 1902. It is still quite common in the Tring and Ashridge neighbourhood. There are records from Whipsnade but none during the last five years. It is unlikely that this species would be long overlooked because of its use of human habitations for hibernation. Groups of up to 20 hibernate in lofts of houses usually in older property to which they gain access from outside.

Harvest Mouse (*Micromys minutus*). This has been the subject of much pioneer work in the county and it is now shown to be much more widespread than it was previously thought to be. It is not suggested, however, that its density or distribution has changed recently, see Bedfordshire Naturalist No. 28.

House Mouse (*Mus musculus*). This is not well recorded and is believed to be a declining species due to better vermin control and building changes. Modern houses and methods of food storage reduce the habitats of this species. Although it can live outside houses it does not often do so. The Wood Mouse (*Apodemus sylvaticus*) is now found in larger numbers both inside and outside buildings.

Grey Squirrel (*Sciurus carolinensis*). Records show almost complete absence from clay areas reflecting a lack of woodland. It is often found on gamekeepers' gibbets and death is also caused by road accidents. It has no natural predators. It thrives in large gardens and town parks. Black forms are still common in the Woburn area and at Battlesden. The Red Squirrel (*Sciurus vulgaris*) is no longer present in the county.

Fox (*Vulpes vulpes*). This is widespread and present in most habitats, even visiting urban gardens and looting wastepaper sacks. In some areas it is much controlled by gassing, snaring, shooting and killing by terriers. Despite all this the fox seems to survive in apparently undiminished numbers. To the naturalist the fox is a most attractive animal but difficult to watch, but it does much good in controlling other so-called pests such as rabbits, rats and voles. It is now being studied intensively because of its role as the most important vector in the spread of rabies across Europe.

Badger (*Meles meles*). The lack of any past information makes it difficult to assess the present status in terms of increase or decrease in numbers. Work undertaken during the past 3 years as part of the Mammal Society Survey should make this task easier in the future. Over 50 setts in the county have now been mapped and recorded. Badgers are widespread in the county with the greatest concentration in the south-west around Leighton Buzzard and Dunstable. Despite the Badger Act interference with setts is still common but this is sometimes due to foxes living in the same holes as badgers. Some landowners are still anti-badger with most keepered estates being completely devoid of active setts, whilst others exercise a heartening degree of tolerance. Although in the past badgers have been considered to be social animals, living in family groups and visiting other setts, recent work done by Hans Kruk in woods near Oxford suggests that they may be territorial with strictly defined territories regularly patrolled and marked with dung pits and scenting. We are not sure how far this relates to parts of Bedfordshire where populations are much less dense than in the study area in Wytham Woods. Due to urban development badgers now live in some areas in close proximity to man. They seem to be able to withstand quite a high degree of human disturbance and are regular visitors for food in gardens in Leighton Buzzard and Dunstable. Their setts depend on access to open country and further building may eliminate them.

Ferrets. Records made since 1975 provide evidence of them living wild in the county since 1975 but breeding in the wild has not been confirmed. Wide varieties

in size are likely to be met and colour may vary from albino to the true polecat coloration of dark brown or black.

Otter (*Lutra lutra*). There is one record from the Ouse in 1971 and an unconfirmed report from the Ivel in 1972. It is a nomadic species which is very rare and declining nationally.

Chinese Water Deer (*Hydropotes inermis*). This is an introduced species from Asia and the Bedfordshire population originates from Woburn and possibly from Whipsnade Zoo. It has not colonised as successfully as the muntjac and it is still local in its distribution. It is similar in size to the muntjac and undoubtedly confusion can occur in its identification. The male has no antlers but has very enlarged canines and it has a very small tail. The sites in which Chinese deer have been seen regularly have some common features: open terrain with rough grass and wet areas such as streams, ditches and marshes. They lie in the rough grass or ditches and do not appear to inhabit wooded or scrub-covered areas. They are said to be highly strung and this together with the exposed nature of the areas they prefer makes them difficult animals to study. Perhaps the best place to become familiar with the appearance of these deer is the boundary fence of Whipsnade Zoo where the grass paddocks have high densities of them. Not more than two have ever been seen together in the wild in Bedfordshire. This species of deer is the only one in Britain commonly to have multiple births, up to four being recorded.

Fallow Deer (*Dama dama*). A cluster of records of fallow deer in the south of the county is almost certainly of wanderers from the large Ashridge herd and it is unlikely that they are present in Bedfordshire for the whole year but return to Ashridge for the rut in the autumn. Fallow deer are now confirmed from Potton Wood and are presumed to come from the population at Hayley Wood in Cambridgeshire.

Muntjac Deer (*Muntiacus reevesi*). This is a species introduced from the Far East to Woburn from where it escaped late in the nineteenth century. It has spread over a large part of England and is present in a wide variety of habitats and is able to subsist in quite small areas but requires dense cover of some type. Suitable habitats can support large numbers with little evidence of their presence. This was well demonstrated by a netting exercise carried out by Dr. Dansie in Maulden Wood where a one hectare young conifer plantation was shown to hold at least 13 individuals. Part of the muntjac's successful spread is due to the young animals being forced to search for new territories and this leads to animals appearing in towns where they often become road casualties. Young animals may be encountered at any time of the year as the muntjac can breed continuously on a 7 month cycle.

References and suggestions for further reading

- | | |
|-----------------------------------|----------------------------------------------------------------|
| Burton, M. | The Hedgehog. Deutsch. |
| Chapman, D.I. and Chapman, N. | Fallow Deer. British Deer Society. |
| Dansie, D. | Muntjac. British Deer Society. |
| Lawrence, M.J. and Brown, R.W. | Mammals of Britain, their tracks, trails and signs. Blandford. |
| Lockley, R.M. | The Private Life of the Rabbit. Deutsch. |
| Matthews, L.H. | British Mammals. Collins. |
| Mellanby, K. | The Mole. Collins. |
| Neal, E. | The Badger. Collins. |
| Paget, R.J. and Middleton, A.L.V. | Badgers of Yorkshire and Humberside. Sessions. |
| Taylor-Page, F.J. | Field Guide to British Deer. British Deer Society. |
| Van den Brink, F.N. | A Field Guide to the Mammals of Britain and Europe. Collins. |
| Vesey-Fitzgerald, B. | Town Fox, Country Fox. Deutsch. |
| Yalden, D.W. and Morris, P.A. | The Lives of Bats. David and Charles |

REPORT OF THE RECORDER FOR BIRDS (Aves)

LIST OF CONTRIBUTORS

Thanks are due to all contributors as follows: P.H. Addington, M. Andrews, V.W. Arnold, M.K. Bierton, R. Bradshaw, C.W. Burton, P. Caswell, M. Clark, R.A. Corkett, A. Darrington, W.J. Drayton, J.N. Dymond, P. Fuller, A.H. Game, R.W. Garner, J.M. Green, M. Green, H.A. Hill, Mrs. E. Hollingworth, Mr. and Mrs. G. Hooper, N.F. Janes, D.J. King, D.P. Lawrence, A.J. Livett, D.V. Mardle, H. Mayer-Gross, A. Miller, B.J. Nightingale, J.R.A. Niles, W.H. Nourish, J.P. Oliver, M.J. Palmer, H.F. Pegg, D.A. Peterkin, T. Peterkin, P.C. Pilcher, B.D. Ray, P. Rhodes, B.R. Sacree, M.R. Seaman, Miss B. Smart, G. Searle, Dr. † T.R. Sharrock, Mrs. E.M. Sharrock, Mrs K. Simco, P. Smith, B.R. Squires, T.J. Thomas, R.I. Thorpe, Mrs. A.S. Titley, J.J. Tirrell, P. Trengrove, G.R. Wallen, Mrs. M. Wallen, K.R. Weeden, P.J. Wilkinson, M.C. Williams, D.A. Woodhead, M.A. Woodhead, R.J. Woolnough.

SYSTEMATIC LIST FOR 1976

Species recorded in Bedfordshire during 1976 and not included in the systematic list are: Little Grebe *Tachybaptus ruficollis*, Mute Swan *Cygnus olor*, Kestrel *Falco tinnunculus*, Red-legged Partridge *Alectoris rufa*, Partridge *Perdix perdix*, Pheasant *Phasianus colchicus*, Moorhen *Gallinula chloropus*, Herring Gull *Larus argentatus*, Common Gull *Larus canus*, Stock Dove *Columba oenas*, Wood-pigeon *Columba palumbus*, Collared Dove *Streptopelia decaocto*, Green Woodpecker *Picus viridis*, Great Spotted Woodpecker *Dendrocopus major*, Carrion Crow *Corvus corone*, Jay *Garrulus glandarius*, Great Tit *Parus major*, Coal Tit *Parus ater*, Marsh Tit *Parus palustris*, Willow Tit *Parus montanus*, Long-tailed Tit *Aegithalos caudatus*, Nuthatch *Sitta europaea*, Treecreeper *Certhia familiaris*, Wren *Troglodytes troglodytes*, Mistle Thrush *Turdus viscivorus*, Song Thrush *Turdus philomelos*, Blackbird *Turdus merula*, Goldcrest *Regulus regulus*, Dunnock *Prunella modularis*, Meadow Pipit *Anthus pratensis*, Starling *Sturnus vulgaris*, Goldfinch *Carduelis carduelis*, Bullfinch *Pyrrhula pyrrhula*, Chaffinch *Fringilla coelebs*, Corn Bunting *Emberiza calandra*, Reed Bunting *Emberiza schoeniclus*, House Sparrow *Passer domesticus*. The order is as set down in "The Species List of British and Irish Birds" by the British Trust for Ornithology 1971.

The following abbreviations are used in the text: SW = Sewage Works, CHP = Chalk Pit, CLP = Clay Pit, GP = Gravel Pit, L = Lake, NR = Nature Reserve.

As in previous years around 160 species were recorded. The highlights of the year included high numbers of Great Crested Grebe in February and December, the presence of Cormorants throughout the year, a Scap in August, Smew during January/March, 14 Bewick's Swan in December, Red Kite in August, Honey Buzzard in May, several Osprey records, breeding Hobbies, Peregrine in June, Merlin in October, Caspian Tern in July, Long-eared Owl roosts, probable Short-eared Owl breeding, influx of Wryneck in Autumn, a singing Firecrest in June and Twite flock in February.

Winter Wildfowl counts were organised in conjunction with the Wildfowl Trust but numbers were low due to the mild weather.

The British Trust for Ornithology organised a Nightingale Survey during late May/early June.

Some observers continued the Common Bird Census and much headway was made with plotting and mapping the breeding birds of the county.

Great Crested Grebe *Podiceps cristatus*

No organised count made as in 1975 but good numbers of young reported. No change in breeding status. Winter counts of exceptionally high numbers all at Stewartby L as follows: 85 on 15th February, 98 on 12th December, 94 on 24th December and 80 on 31st December.

Slavonian Grebe *Podiceps auritus*

3 Harrold GPs 21st/22nd August.

Cormorant *Phalacrocorax carbo*

The Brogborough CLP/Stewartby L birds of 1975 were present throughout the year until 14th November when two observed. Numbers fluctuated from 4 immatures on 1st January to 8 on 19th April and then 2 through to November. 3 north over Biggleswade 18th October.

Heron *Ardea cinerea*

8-10 occupied nests at Southill L and 4 nests at Bromham Hall. 24 in Luton Hoo Park on 26th August and 12th September.

Mallard *Anas platyrhynchos*

The maximum at selected waters from January to March and from September to December are tabulated. In this and the following tables '—' indicates that no count was received or no birds were seen.

	18 Jan	15 Feb	14 Mar	12 Sept	17 Oct	14 Nov	12 Dec
Vicarage Farm CLP/ Stewartby L	—	—	4	29	—	—	8
Brogborough CLP	76	16	—	60	130	20	100
Southill L	325	190	80	600	400	550	350
Felmersham GP	29	23	18	25	23	37	19
Luton Hoo L	89	46	25	177	357	150	78
Blunham GP	104	109	20	65	78	—	73
Harrold/Odell GPs	1030	350	250	640	730	672	303

Teal *Anas crecca*

The maximum monthly counts Jan/March and Sept/Dec are listed below:

	18 Jan	15 Feb	14 Mar	12 Sept	17 Oct	14 Nov	12 Dec
Vicarage Farm CLP/ Stewartby L	10	—	—	9	9	15	23
Brogborough CLP	2	8	—	2	—	—	2
Southill L	45	61	21	45	90	55	21
Felmersham GP	—	5	—	—	—	—	3
Luton Hoo L	4	19	13	6	—	—	—
Blunham GP	—	6	2	—	—	—	—
Harrold/Odell GPs	8	5	4	16	4	35	22

Garganey Anas querquedula

2 Dunstable SW on 1st September.

Gadwall *Anas strepera*

Singles Harrold GPs 18th January, 26th September, 3rd October, 7th November, 4th and 12th December. 2 there 21st March and 5 on 31st December. 2 Brogborough CLP 19th April, pair Stewartby L 30th May, drake there 6th June, duck 13th June and 7 31st December. Single Southill L and pair Luton Hoo L 12th September.

Wigeon *Anas penelope*

16 Harrold GPs 11th January increasing to 56 on 1st February, 70 on 15th January decreasing to 30 on 7th March and last on 14th March. 8 there 24th October increasing to 18 on 27th December. 14 Brogborough CLP and 29 Odell GPs on 22nd February. 16 Blunham GP 12th March. Smaller numbers elsewhere.

Pintail *Anas acuta*

Singles Vicarage Farm CLP 20th April. 2 Harrold GPs 3rd October, single 21st November, 2 on 4th December and 1 on 27th December. Single Brogborough CLP on 5th December.

Shoveler *Anas clypeata*

No breeding season records. 33 Southill L 30th October, 35 on 13th November and 12th December. 18 Dunstable SW 5th September increasing to 35 on 13th November, 67 on 21st November. 30 there 28th December.

Mandarin Duck *Aix galericulata*

Recorded during year at Woburn Park, Linslade and Eversholt L.

Red-crested Pochard *Netta rufina*

Pair Blunham GPs 11/12th December. Possibility of being escapes not ruled out.

Scaup *Aythya marila*

Drake Harrold GPs 18th August.

Tufted Duck *Aythya fuligula*

83 young reported. Winter counts from selected waters as follows:

	18 Jan	15 Feb	14 Mar	12 Sept	17 Oct	14 Nov	12 Dec
Vicarage Farm CLP/ Stewartby L	8	--	--	--	--	2	10
Brogborough CLP	37	15	9	25	39	10	40
Southill L	30	18	14	4	2	10	2
Felmersham GP	59	25	34	8	14	22	10
Luton Hoo L	31	9	13	2	3	5	3
Blunham GP	111	86	43	15	17	--	9
Harrold/Odell GPs	310	180	65	63	93	61	62

Pochard *Aythya ferina*

5 young raised Luton Hoo L and 4 East Hyde. Winter counts as follows:

	18 Jan	15 Feb	14 Mar	12 Sept	17 Oct	14 Nov	12 Dec
Vicarage Farm CLP/ Stewartby L	39	—	1	—	—	—	45
Brogborough CLP	74	—	—	15	21	54	63
Southill L	91	97	46	70	115	125	32
Felmersham GP	—	—	3	—	—	—	—
Luton Hoo L	29	23	36	1	12	14	—
Blunham GP	119	77	12	3	49	—	13
Harrold/Odell GPs	75	27	14	29	35	14	7

Goldeneye Bucephala clangula

5 Blunham GP 13th March with singles 20th March and 4th April. 7 there 12th December. 4 Harrold GPs 29th February decreased to single on 28th April. 2 on 31st October increasing to 5 on 31st December. 2 Stewartby L 4th January increasing to 3 by 22nd February and 5 20th March. Last spring record 2 on 11th April. 3 on 5th December increasing to 6 by 29th. Singles recorded elsewhere during year.

Common Scoter *Melanitta nigra*

4 at Stewartby L and Brogborough CLP 18th April. Date coincides with previous spring records.

Red-breasted Merganser *Mergus serrator*

Single drake Harrold GPs 27/28th April.

Goosander *Mergus merganser*

7 "red-heads" Stewartby L, 1 "red-head" and 3 drakes Brogborough CLP, single "red-head" Harrold GPs 4th January. "Red-head" Blunham GP 11/18th January.

Smew *Mergus albellus*

3 "red-heads" River Ivel, nr. Girtford Pits, 29th January. 2 "red-heads" Harrold GPs 8th February decreasing to single 14th March. Last recorded 23rd March.

Shelduck *Tadorna tadorna*

Singles Brogborough CLP 1st and 22nd February. 2 Stewartby L 7/14th March increasing to 6 by 28th. 4 on 3rd April with a pair until 23rd May. 2 Girtford GP 4th April. 4 Brogborough CLP 17th October. Singles Vicarage Farm CLP and Dunstable SW 14th November and 18th/19th December respectively.

Grey Geese *Anser* sp.

8 flying in an easterly direction over Maulden 11th January, 3 south over Dunstable 23rd March, 3 over Biggleswade 26th March, 20 over Chicksands Wood 18th September and 28 over Biggleswade 21st September.

Greylag Goose *Anser anser*

2 possibly genuinely wild Brogborough CLP 22nd February. 2 pairs bred Harrold GPs raising 10 and 3 young respectively. 11 Odell GP 22nd February, 15 Felmersham GP 20th March, 27 Harrold GPs 31st October.

Canada Goose *Branta canadensis*

8 young raised Luton Hoo L, single Brogborough CLP and 6 Lidlington CLP. 72 Eversholt L 11th January, 12 Southill L and 37 Wrest Park 18th January, 16 East Hyde 26th January, 17 Wrest Park 29th February, 43 Eversholt L and 35 Wrest Park 8 August, 45 Southill L 15th August, 95 Wrest Park 5th September and 63 19th September.

Whooper Swan *Cygnus cygnus*

2 Harrold GPs 4th January.

Bewick's Swan *Cygnus bewickii*

14 near Harrold 21st December and single near Millbrook station 27/31st December, present into 1977.

Buzzard *Buteo* sp.

Singles Luton Hoo mid-May, East Hyde SW 29th September and Luton Hoo 9th December.

Buzzard *Buteo buteo*

Singles Biggleswade 27th January, Pirton area 5th June and 4th July, Luton Hoo middle July, The Lodge, Sandy, 26th and 28th September.

Sparrowhawk *Accipiter nisus*

Probably bred in north-west of county. Singles Hockliffe 19th August, Biggleswade 6th November, Aspley Heath 7th November and The Lodge, Sandy, 27th November. Also reported in Luton Hoo during November.

Red Kite *Milvus milvus*

Single adult near Harrold 12th/20th August. Second county record (since 1947)

Honey Buzzard *Pernis apivorus*

Single 19th May. Locality suppressed. First county record (since 1947)

Osprey *Pandion haliaetus*

Single Cranfield 18th April. An interesting series of records in October probably involving 2-4 birds: Southill L 10th-28th, Stewartby L 17th-26th, Shuttleworth 16th. One flying over Warden Warren 17th.

Hobby *Falco subbuteo*

3 pairs raised broods of 3, 2 and at least 1. First breeding records since 1968. Singles Harrold GPs 1st May and 26th August, The Lodge, Sandy, 6th July and 24th August, Eversholt L 1st and 8th August, Oakley 11th August.

Peregrine *Falco peregrinus*

Single Yelden 14th June First since 1962.

Merlin *Falco columbarius*

Single Dunstable 31st October.

Golden Pheasant *Chrysolophus pictus*

Only reported from Luton Hoo but presumably present in usual locations.

Lady Amherst's Pheasant *Chrysolophus amherstiae*

30 Luton Hoo at beginning of year increasing to 100 by the year end. Recorded during year at Charle Wood, Sharpenhoe, Moneypot Hill, Maulden Woods, Exeter Wood and Pedley Wood.

Water Rail *Rallus aquaticus*

Recorded during breeding season at Flitwick Moor (the only regular breeding location in the county) and Luton Hoo. Winter records from Harrold GPs, East Hyde, Girtford GPs and Biggleswade Common.

Coot *Fulica atra*

105 Brogborough CLP, 109 Odell GP and 280 Harrold GP's 18th January. 700 Brogborough CLP 17th October, 500 14th November and 650 12th December. 160 Blunham 17th October.

Oystercatcher *Haematopus ostralegus*

8 Brogborough CLP 22nd February and 10 over Carlton 17th December.

Lapwing *Vanellus vanellus*

Hard weather movement recorded on 25th January with 2120 moving SSW/SW between 0830-0900 and 1000 0900-1000 hrs. Good numbers wintering in county with 400 north of Blunham GP 18th January, 250 Rowney Warren 15th February, 500 Brogborough CLP 22nd February, 550 Rowney Warren 13th November, 1000 in Pirton area November/December.

Ringed Plover *Charadrius hiaticula*

One pair raised 3 young Harrold GPs and another was unsuccessful. Small passage at 6 localities from 12th March until 28th September.

Little Ringed Plover *Charadrius dubius*

12 reported successful breeding pairs. First recorded on 21st March and last 12th September. Passage noted at 8 localities.

Grey Plover *Pluvialis squatarola*

Single Harrold GPs 31st October.

Golden Plover *Pluvialis apricaria*

Winter flocks smaller than normal: 50/70 at Biggleswade Common through January with 120 8/9th February, 80 Luton Airport 19th January, 130 southwest over Pegsdon (cold weather movement) and 50 Harrold 25th January, 74 Rowney Warren 15th February, 61 Tempsford Airfield 29th February, 77 Vicarage Farm 14th March, 31 in partial summer plumage Shillington 27th March, 18 Tempsford Airfield 9th April, 52 Chawston GP 22nd September, 30 Vicarage Farm 11th December, 150 Biggleswade Common 25th December and 20 Millbrook 27/31st December.

Turnstone *Arenaria interpres*

3 Harrold GPs 27th April.

Snipe Gallinago gallinago

Reported from 5 localities during breeding season but success not known. Highest winter counts at Bedford SW: 45 during January decreasing to 30 in February and 10 on 12th April; 49 Hollington, Maulden 21st November. Smaller numbers elsewhere.

Jack Snipe Lymnocyptes minimus

3 Houghton Regis CHP 25th January, 2 on 14th March and 3 on 23rd November. Singles East Hyde SW 30th January/2nd February and Stewartby L 19th April. Maximum 3 Bedford SW 11th January.

Woodcock Scolopax rusticola

Reported from 15 localities during breeding season.

Curllew Numenius arquata

Singles Stewartby L 1st February, Dunstable SW 30th March and Girtford GPs 13th July.

Whimbrel Numenius phaeopus

3 singles north over The Lodge, Sandy, 3rd May and single 25th May. Single at Harrold GPs from 14th May until 6th June when found dead.

Bar-tailed Godwit Limosa lapponica

2 Harrold GPs 2nd May, single 3rd May.

Green Sandpiper Tringa ochropus

Recorded in ones or twos at 7 localities during winter months. 4 Bedford SW 22nd July, 3 The Lodge, Sandy, 13th August.

Common Sandpiper Tringa hypoleucos

Spring passage commenced 12th April with 2 at Dunstable SW and ceased on 16th May. Autumn passage commenced 21st July with single at Harrold GPs and last recorded 10th October at same locality. Recorded in ones or twos at 13 localities during passage periods.

Redshank Tringa totanus

Only 1 pair reported breeding successfully at Harrold GPs and nest/eggs located Bedford SW although present during season at Houghton Regis CHP, Stewartby L, Lidlington CLP, Brogborough CLP, Vicarage Farm CLP, Girtford GPs and Wyboston GPs.

Greenshank Tringa nebularia

Singles recorded 1st and 6th May Harrold GPs and Girtford GPs, 1st August Brogborough CLP, Chawston GP 15th August, The Lodge, Sandy, and Girtford GPs 19th August, Stewartby L 25th August, Chawston GP 27th August and 2nd/3rd September, Dunstable SW 5th September and Stewartby L 12th September. 2 Harrold GPs 13th/17th August and 25th August. Singles at same locality 29th July/12th August, 22nd August, 1st and 26th September.

Knot Calidris canutus

Single Chawston GP 17th September.

Little Stint *Calidris minuta*

Single Chawston GP 22nd September.

Dunlin *Calidris alpina*

No definite passage noticed. 5 Bedford SW 1st January, 7 2nd January, 4 on 3rd/4th January, 3 on 17th January, 2 on 7th February, 4 on 16th February, 2 on 17th/18th February, 3 on 21st March. 4 Harrold GPs 4th January, 2 on 18th January, 4 on 18th February, 6 on 22nd February, 1 on 29th February and 14th March, 2 on 23rd and 26th March, 1 on 14th May and 19th August, 3 on 19th September and singles on 3rd October, 21st and 28th November, 4th and 22nd December. 2 Chawston GP 15th August, 3 on 17th September, 4 on 20th September, 2 on 23rd September, single 24th September and 3 on 28th September. Singles Vicarage Farm CLP 16th May and 1st August. 2 Brogborough CLP 1st August and 5th December. Singles Stewartby L 1st February and East Hyde SW 2nd/4th February. 4 Blunham GP 12th March and 3 Girtford GPs 6th May.

Ruff *Philomachus pugnax*

Single East Hyde SW 2nd/6th February, 2 Bedford SW 13th/14th March, 2 Brogborough CLP 14th March and single 19th March, 4 Bedford SW 10th April, singles Harrold GPs 29th July and Blunham GPs 30th August. 2 Brogborough CLP 9th September. Single there 19th September and Blunham GPs 11th December.

Greater Black-backed Gull *Larus marinus*

50 Brogborough CLP 29th September

Lesser Black-backed Gull *Larus fuscus*

30 Luton Hoo 9th August and 100 Dunstable SW 22nd August.

Little Gull *Larus minutus*

Immatures Stewartby L 15th May and Lidlington CLP 23rd May.

Black-headed Gull *Larus ridibundus*

Nesting colonies of 50 at Brogborough CLP and 200 Vicarage Farm CLP. Albino reported from Stewartby L.

Black Tern *Chlidonias niger*

Single Harrold GPs 9th May and 26th September. 2 there 23rd May. Very late record single Stewartby L 10th November.

Caspian Tern *Hydroprogne caspia*

Single Harrold GPs 18th July. First county record (since 1947) of this species that breeds around The Baltic and Black Sea Coasts, Tunisia and irregularly eastwards to Manchuria and south to southern Africa, Australia and New Zealand, also North America.

Common/Arctic Tern *Sterna sp.*

Single Harrold GPs 23rd April, 2 27th April and 20th June, 3 on 4th July. 2 Stewartby L 2nd May, and singles 23rd May, 25th and 27th/28th July, 30th August, 29th September and 24th October. Single Brogborough CLP 28th July.

Common Tern *Sterna hirundo*

Breeding proved at Harrold GPs (2 young) and Roxton GPs (3 young).

Singles Stewartby L and River Ouse, Bedford, 16th and 17th May respectively, Stewartby L 25th August, Blunham GPs 30th August, Stewartby L 17th September with 2 on 3rd October.

Little Tern *Sterna albifrons*

Single Stewartby L 30th August.

Turtle Dove *Streptopelia turtur*

First recorded 2nd May Streatley and last 3 Dunstable SW 3rd October.

Cuckoo *Cuculus canorus*

First recorded 11th April and last 5th August.

Barn Owl *Tyto alba*

Recorded at 12 localities during year. No proven breeding reported and probably commoner than records suggest.

Little Owl *Athene noctua*

Recorded at 22 localities during year with breeding proven at 2 sites.

Tawny Owl *Strix aluco*

Recorded in at least 50 localities. No doubt improved total due to Nightingale survey (see under that species). However, proven breeding not reported.

Long-eared Owl *Asio otus*

Up to 15 Tempsford area February/May. 12 Dunton area February/March.

Short-eared Owl *Asio flammeus*

A pair present in middle of county throughout year almost certainly bred. Singles Pirton and Hexton 7th and 15th March, Moggerhanger 18th April, Old Warden 19th September, Stewartby L 18th October and Barkers Lane GP 2nd December. 4 Pirton 4th March.

Nightjar *Caprimulgus europaeus*

Present during breeding season in Chicksands Wood, Warden Warren and Tingrith Wood.

Swift *Apus apus*

First recorded Harrold GPs 2nd May. Main influx around 16th May with 200 Stewartby L, 100 Brogborough CLP and Luton Hoo. Last recorded 21st October The Lodge, Sandy.

Kingfisher *Alcedo atthis*

Breeding proven at 2 sites although present during year at 22 additional sites.

Hoopoe *Upupa epops*

Single present Stotford 12th/14th June.

Lesser Spotted Woodpecker *Dendrocopos minor*

Recorded at 12 localities during year.

Wryneck Jynx torquilla

A good crop of records coinciding with an influx into East Anglia. One freshly dead Biggleswade Common 23rd August, one injured on roadside and subsequently released at Sharpenhoe 26th August, singles Clapham 28th August, Dunstable 10th September, Harrold GPs 12th September, Oakley 14th September (flew into school window) and The Lodge, Sandy, 20th/23rd September.

Skylark Alauda arvensis

600 Sewell, 150 Pegsdon Hills 25th January and 200 Dunstable SW 3rd December.

Swallow Hirundo rustica

First recorded on 1st April at Harrold GPs. Main influx commenced 10th/11th April. 300 Dunstable SW 4th August. 2 Harrold GPs and 3 Wrest Park 31st October. Last recorded juvenile East Hyde SW 8th November.

House Martin Delichon urbica

First recorded 1st April at East Hyde with subsequent records on 4th, 9th and 10th April. Main influx towards end April. 7 Stewartby L and 50 East Hyde SW 24th October. 12 latter locality 2nd November, 10 on 5th, 8 on 11th, 4 on 15th, 3 on 16th, 2 on 17th and single juvenile from 18th until 1st December.

Sand Martin Riparia riparia

Another year of late arrivals, few birds and not very widespread. First record 1st April Harrold GPs and then 16th April Stewartby L. Single Harrold GPs 24th October.

Corvidae

5000 to 7000 Rook *Corvus frugilegus* and Jackdaw *Corvus monedula* in mixed flock Luton Hoo 23rd August.

Hooded Crow Corvus corone cornix

Singles Chawston GP 2nd January, Milton Ernest 22nd February, Biggleswade Common 5th December.

Magpie Pica pica

50 Bison Hill, Dunstable Downs, 17th April and 4th December.

Blue Tit Parus caeruleus

40 in flock Houghton Hall 1st January.

Fieldfare Turdus pilaris

Winter flocks included 200 Pegsdon Hills 25th January, 90 Pedley Wood 22nd February, 200 Rowney Warren 13th March, 400 Southill Park 21st March. 5 New Farm, Streatley, 2nd March. Present during breeding season. Influx into Sewell after hard weather on 30th December when 100 seen.

Redwing Turdus iliacus

Larger winter flocks included 300 Houghton Hall January/March, 150 Luton Hoo 15th February, 300 Pegsdon Hills 31st October, 100 Old Warden

Tunnel 7th November, Build up in north Dunstable on 29th December after cold weather with 4000 Sewell 30th December. Single The Lodge, Sandy, 11th May to 15th June.

Ring Ouzel *Turdus torquatus*

Single Houghton CHP 17th/18th April.

Wheatear *Oenanthe oenanthe*

Good spring passage and singles Harrold GPs 26th, 28th and 30th March, New Farm Streatley 3rd April. 2 Dunstable SW and Stewartby L 4th April. 5 Pirton 6th April. Singles Biggleswade and Tempsford 8th and 9th April. 2 Harrold GPs 9th April. Single Putnoe 10th April. Singles Dunstable SW and Stewartby L 11th April. 3 New Farm Streatley 18th April. Singles New Farm Streatley 1st/2nd May, Dunstable SW 5th May, Cardington 6th May. 2 Bramingham Wood 8th May.

Single Harrold GPs 11th May. 4 New Farm Streatley 18th May. Only one autumn record of single Copt Hall 19th September.

Stonechat *Saxicola torquata*

Present Pirton area during January/February. Female Bedford SW 1st January, pair 2nd, female 3rd, pair 4th, male 24th, female 7th February. Singles Chimney Corner CLP 26th January, Sandy 1st February, Tempsford 29th February and Stewartby L 1st October. Female Harrold GPs 10th and 17th October, pair 24th to 7th November. Female 14th November/31st December. Male East Hyde SW 23rd November/2nd December. Male Dunstable SW 10th October until 21st November when pair present until year end.

Whinchat *Saxicola rubetra*

No breeding records. Singles East Hyde 10th May, Sharnbrook Tunnel 15th August, Harrold GPs 22nd and 31st August, 10th and 17th October. 3 Blunham GPs 30th August, 8 Dunstable SW 5th September, 2 3rd October and single 10th October.

Redstart *Phoenicurus phoenicurus*

Only breeding season records of female Wavendon Heath 26th May and a pair in Southill Park 11th June. Other records presumably refer to migrants: Bedford 22nd April, Luton Hoo 25th April, Dunstable Downs 1st/2nd May and Wootton Wood 1st May.

Black Redstart *Phoenicurus ochruros*

Single Harrold GPs 23rd March. Pair present in Luton during summer.

Nightingale *Luscinia megarhynchos*

The British Trust for Ornithology organised a national survey in late May/early June. The Bedfordshire total was between 13 and 30 singing males. Counts varied at specific sites no doubt due to weather conditions. The breakdown was as follows: 1/2 Colworth, 1/2 Marston Thrift, 1 Kempston Wood, 1/3 Wootton Wood, 2/5 Maulden Wood, 1/9 Home Wood, 2 Tobacco Pipe Spinney, 1 College Wood, 1/3 Potton Wood, 1 Pedley Wood, 1 between Tempsford/Blunham.

Robin *Erithacus rubecula*

1 found dying in Houghton Regis on 4th July had been ringed at Marsworth Reservoir, Tring, on 30th June 1975.

Grasshopper Warbler *Locustella naevia*

5 singing males reported during breeding season Chicksands/Pedley Wood, 2 Marston Thrift, 2 Potton Wood, 4 Maulden Wood and singles Dunstable Downs and Pegsdon Hills.

Reed Warbler *Acrocephalus scirpaceus*

Present during breeding season at Stewartby L, Stanbridgeford, Harrold GPs, Luton Hoo L, Toddington Manor L and Southill L.

Sedge Warbler *Acrocephalus schoenobaenus*

First recorded River Ouse, Bedford, on 10th April. Last 12th September Harrold GPs.

Blackcap *Sylvia atricapilla*

First recorded 13th April The Lodge, Sandy. Wintering records of female Carlton 13th November, single Potton 28th November and male Carlton 12th December.

Garden Warbler *Sylvia borin*

First recorded 6th May Maulden Woods and last 3rd September Luton Hoo.

Whitethroat *Sylvia communis*

Appears to be returning to former breeding density. First recorded 25th April with no relevant departure dates.

Lesser Whitethroat *Sylvia curruca*

First recorded Dunstable SW 18th April and last 15th September in Luton. Breeding population remains stable.

Willow Warbler *Phylloscopus trochilus*

First recorded 4th April at several localities and last 5th September Harrold GPs.

Chiffchaff *Phylloscopus collybita*

Early record on 9th March Dunstable SW perhaps an overwintering bird. 1 singing Maulden Wood 28th March with increase from then onwards. 1 in song Rowney Warren 19th September. Singles Flitwick Moor and The Lodge, Sandy, 21st November and 1st December respectively. One in a Bedford garden 26th December.

Wood Warbler *Phylloscopus sibilatrix*

Breeding season records of 4 pairs Charle Wood and single pair Fox Corner. One ringed during summer in Maulden Wood.

Firecrest *Regulus ignicapillus*

One singing Houghton Hall 12th/15th June.

Spotted Flycatcher *Muscicapa striata*

Widespread and successful breeding season. First recorded 8th May The Lodge, Sandy, and last 11th September Ampthill Park.

Pied Flycatcher *Ficedula hypoleuca*

As in previous years all records from The Lodge, Sandy. 2 on 25th August, singles 2nd/3rd and 15th September.

Tree Pipit *Anthus trivialis*

Reported during breeding season from Lidlington, Amptill Park, The Lodge, Sandy, Galley Hill, Shire Oak and Charle Wood. Late migrant at East Hyde SW 20th September.

White Wagtail *Motacilla alba alba*

Singles Harrold GPs 28th March, 4th April, Dunstable SW 18th April and Luton Hoo 25th April.

Grey Wagtail *Motacilla cinerea*

2 pairs bred successfully Luton Hoo. Probably breeding Bromham Mill and present during breeding season East Hyde. Fledged young noted Harrold GPs. Recorded singly during winter months at Harrold GPs, Lewsey Park, Sandy GP, Bedford SW, The Lodge, Sandy, Fancott, Vicarage Farm CLP, Dunstable SW, Biggleswade SW, Wardown Park and Southill L. 1-3 between Biggleswade/Broom 18th February. 2 Dunstable SW 30th December, 4 The Lodge, Sandy, 7th August. 2 East Hyde SW 6th January, 3 on 4th February, 5 on 15th March.

Yellow Wagtail *Motacilla flava*

First recorded 4th April Harrold GPs and then 11th April Stewartby L, Dunstable SW. Last recorded 12th October East Hyde SW. No breeding records reported.

Hawfinch *Coccothraustes coccothraustes*

This secretive bird reported from Noon Hill, Pegsdon, Wrest Park, The Lodge, Sandy, Luton Hoo, Newmill End and Maulden Wood. 3 were ringed at latter locality. 6 feeding on cherry stones Studham during March/April.

Greenfinch *Carduelis chloris*

1500 Pegsdon Hills 2nd November.

Siskin *Carduelis spinus*

All records relate to the period January/April. 75 The Lodge, Sandy, during January, 70 during February, 75 early March decreasing to 20 by month end, 15 during April with last 2 on 27th. Largest concentrations otherwise 93 Warren Wood 11th January, 10 Flitwick Moor 28th January, 15 Southill L 15th February, 30 Rowney Warren 13th/14th March, 10 all singing Maulden Wood 30th March. Smaller flocks elsewhere.

Twite *Acanthis flavirostris*

Unusual occurrence at The Lodge, Sandy, during February as follows: 60 on 6th, 45 on 7th, 48 on 8th, 30 on 9th, 30 on 16th and 67 on 18th.

Redpoll *Acanthis flammea*

150 The Lodge, Sandy, during January, 25 Kings Wood and 40 Stockgrove Park 3rd January, 245 Warren Wood 11th January, 200 Warden Warren 18th January and 70 5th February, 20 Southill Park 18th February, 200 The Lodge, Sandy, during February, 100 Flitwick Moor 22nd February, 200 The Lodge, Sandy, early March increasing to 350 26th, 100 Girtford GP 12th March including

15 of the Mealy race *Acanthis flammea flammea*, 75 Maulden 25th April and 40 Flitwick Moor 21st November.

Crossbill *Loxia curvirostra*

8 The Lodge, Sandy, 21st May, 5 on 22nd and 3 on 17th July.

Brambling *Fringilla montifringilla*

30 Rowney Warren 26th February, 20 to 30 Potton Wood 28th February, 45 Bedford SW 6th/14th March increasing to 60 on 21st March, 30 Potton Wood 18th March, 12 Charle Wood 28th March, 30 Luton Hoo 4th April and 3 25th April, 15 Pegsdon Hills 2nd November.

Yellowhammer *Emberiza citrinella*

300 Pegsdon Hills 25th January and 400 Dunstable during February.

Snow Bunting *Plectrophenax nivalis*

Female or immature Dunstable SW 25th December.

Tree Sparrow *Passer montanus*

500 Dunstable SW 30th December.

ESCAPES

South African Shelduck *Tadorna cana*

2 Harrold GPs 31st October and single 7th November.

Bar-headed Goose *Anser indicus*

Single Harrold GPs 4th December.

Parakeet sp.

Single over Harrold GPs 10th October and 4th December.

Tri-coloured Nun

Single East Hyde 23rd July.

ADDITIONAL/CORRECTED RECORDS 1974

Teal – enter 55 for 30 for September at Vicarage Farm CLP.

Shoveler – maximum 6 at Southill L 17th February.

Pochard – for Southill L enter 65 for January and 62 for February.

Shelduck – 1 Luton Hoo 5th April.

Bewick's Swan – 2 Leighton Buzzard SP present 18th January not 19th.

Ringed Plover – 2 Bedford SW 27th May.

Golden Plover – 224 Copt Hall on 4th February not 11th January.

Common/Arctic Tern – 1 Stewartby L 3rd September.

Swallow – last recorded East Hyde SW 12th November.

ADDITIONAL/CORRECTED RECORD 1975

Mandarin Duck – Linslade site had 10 eggs being incubated 26th May with second nest 7 eggs. Success doubtful.

Ringed Plover – Single Dunstable SW 13th, 14th, 17th August.

Nightjar – should read Warden Warren not Wood.

Redwing – last recorded 13th April in Luton.

Whinchat – 10 Dunstable SW 2nd September.

Grey Wagtail – 3 Chalton SW during November.

B.D. HARDING

THE DECLINE OF THE ROOK POPULATION IN BEDFORDSHIRE

by A.J. Livett – British Trust for Ornithology Representative for Bedfordshire
12, Broughton Avenue, Luton, Beds.

In 1945 the British Trust for Ornithology carried out a National Survey, based on the Military Grid, on the breeding colonies of the Rook (*Corvus frugilegus*). In 1975 the B.T.O. decided to organise a further National Survey, based on the National Grid, as it had become evident from surveys carried out in various counties that the breeding population of the Rook had decreased significantly.

In both surveys the principal objective was to record the location and size of all rookeries. In particular, the data collected in 1975 will be used to form the baseline from which future changes in the distribution and size of rookeries can be measured and, where previous counts have been made, to record the changes that have taken place. The 1975 survey was certainly one of the most important to be organised by the B.T.O. with complete decentralisation, having a local organiser for each county. Local members of the B.T.O., the Royal Society for the Protection of Birds and the Bedfordshire Natural History Society were approached and supplied with instructions and census cards.

A separate card was used for each ten-kilometre grid square, or part of such square, within Bedfordshire to record the following details:— the observer's name and address; the 1" O.S. or 1:50,000 O.S. map number; the county, or new county if applicable; six-figure National Grid reference; locality; altitude; date of count; number of nests in the rookery; information on the site and the species of trees used for nesting. It was essential that the same definition of a rookery was used by all observers, which was that any group of nests 100 metres or more from the next nearest group would be regarded as a separate rookery.

All the details obtained in the National Survey will be transferred to a master card by the national organisers so that an objective assessment can be made of the total population. In addition, other factors which will form part of the analysis will be the size and distribution of rookeries, altitudinal distribution and possibly the species of trees used by the Rook for nesting. Table 1 summarises the result of the 1975 survey.

TABLE 1
The 1975 Survey of Rookeries in Bedfordshire

	Rookeries	Nests		Rookeries	Nests		Rookeries	Nests
SP 91	0	0	TL 02	10	300	TL 13	14	454
92	20	474	03	12	194	14	3	67
93	6	79	04	11	362	15	13	196
94	6	118	05	21	478	16	1	84
95	27	380	06	14	337	23	6	41
96	11	248	11	6	314	24	14	142
TL 01	5	135	12	1	19	25	0	0

Number of Rookeries 201

Number of Nests 4422

Due to minor changes made in the county boundary in 1964 a precise comparison is not possible but Table 2 shows the decrease in the number of rookeries and nests within the county during the period between the two surveys. In 1945 the average number of nests per rookery was 32 but in 1975 this had fallen to 22, being a decrease of 31.3%. As an illustration of the decline in the breeding population of the Rook in Bedfordshire, in the 1945 survey six rookeries were reported having more than 200 nests, whereas in the 1975 survey there were none in this category. The largest rookery in 1945 was at Chalgrave with 598 nests and in 1975 the largest was in Luton Hoo Park with 190 nests. The two maps show the distribution of rookeries in the county in 1945 and in 1975 to illustrate the decline in the number of rookeries and their size. The maps indicate a general decrease throughout the county although there appears to be a particular decrease on the Greensand belt which crosses the county from the south-west to the north-east and has been subject to planting of conifers.

TABLE 2
A comparison of the results of the 1945 and 1975 surveys

Year	No. of Rookeries	Total no. of nests	Size of rookeries in terms no. of nests									
			1-25	26-50	51-75	76-100	101-125	126-150	151-175	176-200	200+	
1945	312	9972	203	60	23	8	4	3	2	3	6	
1975	201	4422	147	38	9	1	2	2	0	2	0	
Decrease	111	5550	56	22	14	7	2	1	2	1	6	
% Decrease	35.6	55.7										

DISCUSSION

The reasons for the decline in the Rook population are not known at present but one can speculate on the possible factors which have contributed to it since 1945. It has been suggested that increasing urbanisation during recent years has been one of the principal reasons for the decrease in number of breeding pairs particularly where this is accompanied by a reduction of suitable feeding habitats within reasonable flying distance of the rookery. The Census Returns of the Registrar General show the population of Bedfordshire to have been 311, 937 in 1951 increasing to 463, 493 in 1971, an increase of 49% compared with only 11% in the whole of England and Wales in this period. Between 1945 and 1975 the population of Bedfordshire no doubt increased by about 75% with almost twice the amount of land within the county subject to some form of urban development.

In addition to this large increase in urbanisation there has been an alarming increase in the amount of land in the county devoted to mineral workings, of clay by the London Brick Company, of chalk for the cement-making industry and of sand and gravel for various purposes. The Minerals Aspect Report Consultation Draft (1972) prepared for the County Review showed that 4,507 acres had already been directly affected by mineral workings and a further 5,352 acres had planning permission for mineral extraction. In 1945 the amount of quarrying in the county was insignificant. In the last twenty years three large Bedfordshire woods have been almost completely clear-felled to make more land arable. The number of places in the county in which Rooks may nest is much diminished.

One of the most important factors in Rook ecology is agricultural practice and its effect on food supply. It is important to any bird population

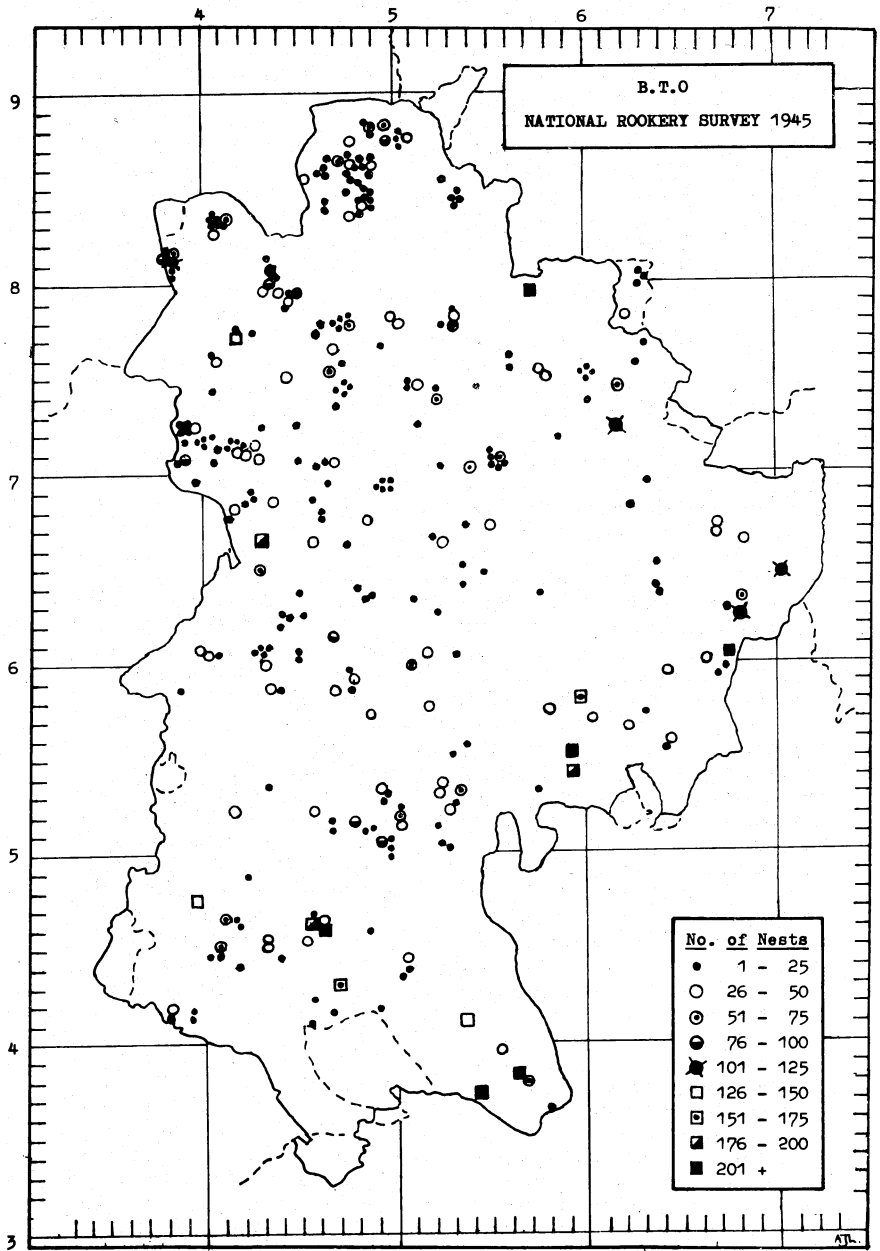
that there is an adequate food supply in winter and summer and increasing urbanisation, resulting in the destruction of feeding habitat, and current agricultural policies are bound to have an adverse effect on the Rook population. The Rook certainly prefers agricultural country and frequents pasture and arable land in Bedfordshire, the heavily wooded areas normally being avoided. Many of the rookeries are situated near farms, villages and the smaller towns but they appear to be reduced or to have disappeared altogether from the large built-up areas. With larger and more farm machinery now being used it has become important to the farmer to enlarge the size of his fields by removing hedges, copses and trees so that the maximum use can be made of the available land. The felling of trees suitable for nesting must have had an adverse effect and one can see this trend continuing as farmers are being encouraged to increase food yields.

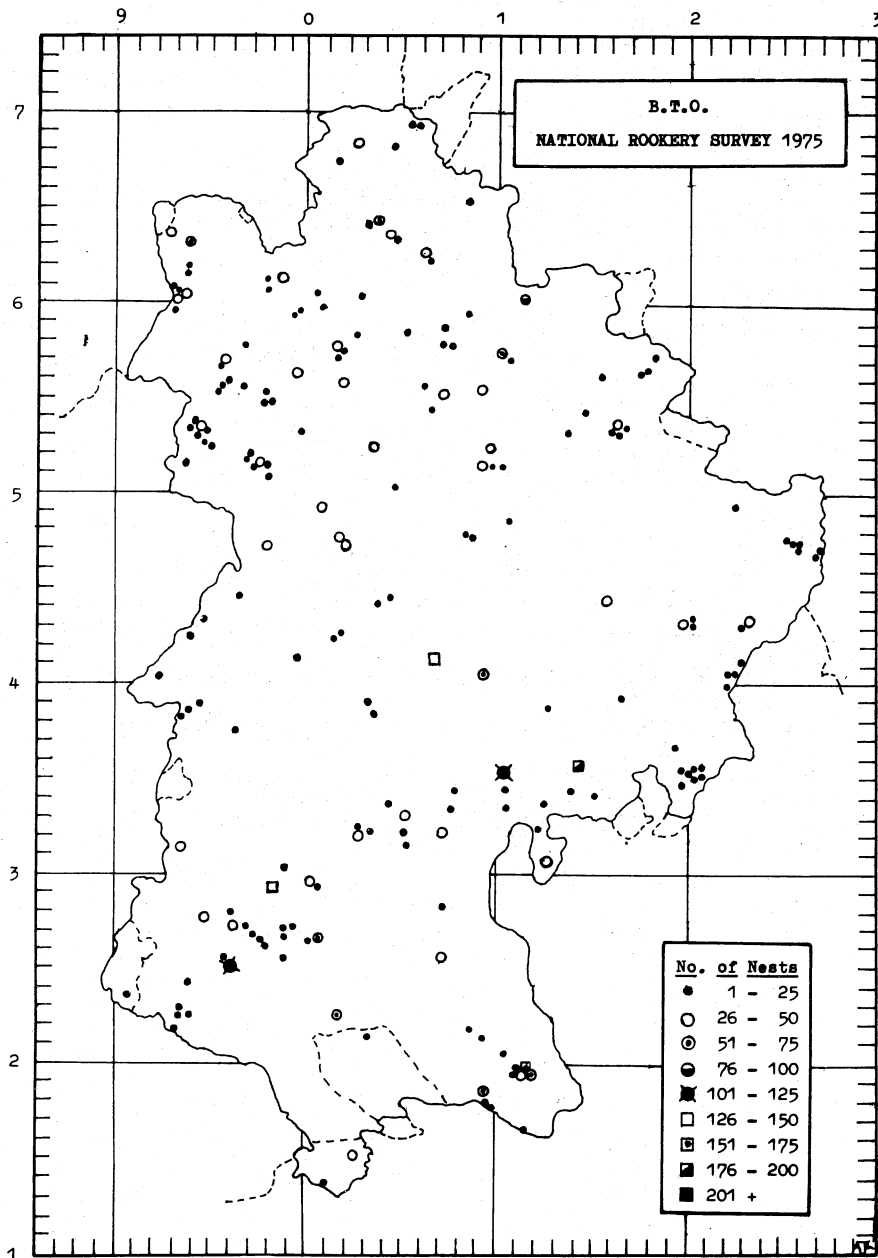
From a survey carried out by the B.T.O. from 1943 to 1946 the food of the Rook was found to be grain, acorns, weed and grass seeds plus animal foods such as earthworms, beetles, spiders, woodlice and snails. Rooks feed their young entirely on invertebrates, particularly earthworms, for at least 14 days after hatching, but towards the end of the nesting period grain begins to feature in the diet. In spring, when the Rook is breeding, earthworms form a large proportion of the diet particularly as these are most abundant in arable and grassland. As the grain crops mature this habitat becomes increasingly inaccessible, particularly to the young inexperienced birds, causing a food shortage. Grasslands are limited in much of the county. This causes high Rook mortality in the summer months.

The Rook also relies heavily on grain, particularly from standing crops and stooks and later from stubble. Combine harvesting, much increased in recent years, has reduced the amount of grain available. The absence of stooks in the fields and the burning of stubble followed often immediately by ploughing must also reduce the amount of grain available. Thus there is an immediate effect on the autumn and winter food supplies of the Rook which could be serious to their survival and the maintenance of their numbers.

Farm chemicals are now extensively used and include herbicides, pesticides and artificial fertilisers. The effect of fertilisers is perhaps minimal but they have changed farming practice because of reduced need for traditional crop rotation. With crop rotation the most important feature is the growing of grass and clover during spring and summer in which the Rook can forage for its food. The use of pesticides may have had an effect on the Rook population in destroying insects on which they feed. Next to fertilisers the most widely used farm chemicals are the herbicides. Herbicide spraying is now a feature of arable farming and sprays are also used on grassland. These sprays are effective in killing weeds and because much of the insect fauna depends upon plants the insects are reduced in number. The weeds also produce seeds so once more the food supply of the Rook is threatened. Modern farming techniques therefore tend to deplete the food supply of the Rook at all seasons of the year and may have contributed to the decline of the Rook population.

From the details supplied in both the 1945 and 1975 surveys it is clear that in Bedfordshire Elms are the most used trees for nest sites. The Rook also used Ash, Horse-chestnut, Beech, Sycamore and several other species but in 1975, of the rookeries reported, an estimated 48% were in Elms. The widespread attack of Dutch Elm Disease could have had a profound effect on the decline and affect the future population of the Rook. The disease is caused by a fungus the vectors being two species of Elm-bark Beetle. In 1975 the Forestry Commission carried out a survey on Elms and estimated that 25% had been killed since the late 1960s in southern England, south of a line from Chester to the Wash. Apparently, the only effective way of controlling the spread of the disease is for affected trees to be felled and burned. It could well be that due to the decrease in the





numbers of Elms the Rooks may have difficulty in finding alternative nesting trees and their population decline still further.

Full details of each rookery accounted for in both the 1945 and 1975 surveys will be deposited with the Bedfordshire Natural History Society so that the data may be available for any other similar surveys in the county.

ACKNOWLEDGEMENTS

I am much indebted to the British Trust for Ornithology for providing the details relating to Bedfordshire of the 1945 survey. I am particularly grateful to Dr. J.G. Dony for his help and encouragement in the preparation of the maps and wish also to thank Mr. M.R. Seaman for his helpful criticisms of my original draft.

OBSERVERS

1945 Census: Bedford School Natural History Society, Mr. E.R. Bullen, Mr. I.J. Ferguson-Lees, Mr. E. Milne-Readhead, Mr. W.E.K. Piercey.
1975 Census: Mr. J.H. Andrews, Dr. J.G. Dony, Mr. W.J. Drayton, Mr. J.N. Dymond *et al*, Mr. D.W. Elliott, Mr. J.M. Green, Mr. B.D. Harding, Mr. J.P. Knowles, Mr. D.P. Lawrence, Mr. H.J.M. Messer, Dr. B.S. Nau, Mr. J.R.A. Niles, Mr. B.J. Nightingale, Mr. P.C. Pilcher, Mr. M.R. Seaman, Mr. P. Smith, Mr. R.J. Woolnough.

REFERENCES

- Anon (1975). Dutch Elm Disease. Habitat Digest, November-December.
Anon (1975). The Dutch Elm Disease hots up. B.T.O. News, 76.
Anon (1976). The National Rook Survey. B.T.O. News, 77.
Dobbs, A. (1964). Rook numbers in Nottinghamshire over 35 years. British Birds 57, 360-364.
Henderson, M. (1968). The Rook population of a part of west Cheshire. Bird Study 15, 206-208.
Holyoak, D. (1968). A comparative study of the food of some British *Corvidae* Bird Study 15, 147-153.
Holyoak, D. (1972). Food of the Rook in Britain. Bird Study 19, 59-68.
Mitchell, A. (1973). Dutch Elm Disease and Birds. Bird Study 20, 80-87.
Sage, B.L. (1972). The decline of the Rook population in Hertfordshire. Trans. Herts. Nat. Hist. Soc. 27, 190-206.
Shrubb, M. (1970). Birds and Farming today. Bird Study 17, 123-144.

BIRD RINGING IN MAULDEN WOOD

by P.J. Wilkinson, 7 Wychwood Avenue, Knowle, Solihull, West Midlands.

Through the kind permission of the Forestry Commission, 27 visits were made to the woods during 1976 in order to ring birds. A total of 566 birds of 32 species were ringed, as shown in Table 1. It may be seen from Table 2 that 76% of the birds were ringed between June and August. 86% were caught at the ponds and it seems clear that many birds were attracted to the ponds to drink because of the drought. Both ponds and the three other sites used are shown on the map.

Although the ponds are not far apart it is immediately apparent from Table 1 that each pond attracts certain species more than others. Although the Bullfinch was equally common at each pond, Greenfinch, Goldfinch, Yellowhammer and Tree Sparrow accounted for 44% of the birds ringed at Tom's Pond but only 7% of the birds ringed at Trilley Pond. On the other hand, Robin and Dunnock accounted for 21% of the birds ringed at Trilley Pond but only 6% at Tom's Pond and for Coal Tit, Blue Tit and Great Tit the figures were 35% and 21% respectively.

Observation suggested that the birds caught at each pond were representative of the birds present and the differences in the species are presumably the result of the different habitats. The predominance of Greenfinch, Goldfinch, Yellowhammer and Tree Sparrow at Tom's Pond is perhaps to be expected as the pond is half surrounded by the open countryside in which the birds feed. The largely deciduous woodland surrounding the other half of the pond might, however, be expected to hold more Robins and Dunnocks than the largely coniferous woodland which surrounds Trilley Pond. There is clearly scope for further study.

Table 3 shows the number of birds ringed in the woods and subsequently retrapped. All except the Great Tit shown on the map were retrapped where they had been ringed. It is generally true that low retrap ratios indicate greater mobility and larger populations than high retrap ratios and it would be interesting to pursue further the difference between the dispersal from the drinking areas of Dunnock and Willow Tits, both of which had high retrap ratios and that of Blue Tits which had a low retrap ratio.

The map also shows details of the two birds so far recovered other than by retrapping. It is particularly interesting that the ring of a Robin was found in a Tawny Owl pellet.

A number of birds were caught while in active moult and although it was not possible for details to be taken of all moulting birds, 36 moult cards were taken and sent to the British Trust for Ornithology's Moulting Record Scheme. The cards record in precise detail the number of new and old wing and tail feathers and the intermediate stages of feathers still growing, together with more general detail of the replacement of the body feathers. The last column of Table 1 sets out details for the species involved. The Willow Tit cards are particularly interesting as they are both from the same bird, once in the early stages of the moult and once when the moult had almost been completed.

The year's results have been encouraging and suggest areas for further study. We have established the presence of two otherwise elusive species, Wood Warbler and Hawfinch and it seems likely from our experience that ringing could be used to complement visual observations on the comparative mobility of different species. Unfortunately, I have been transferred by my employers to the Midlands, and although I expect to be transferred back at some time in the future it may be some time before I can join in any continuation of this work.

I am most grateful for the help of my family, my trainees and the Forestry Commission who have all made this work possible.

TABLE 1

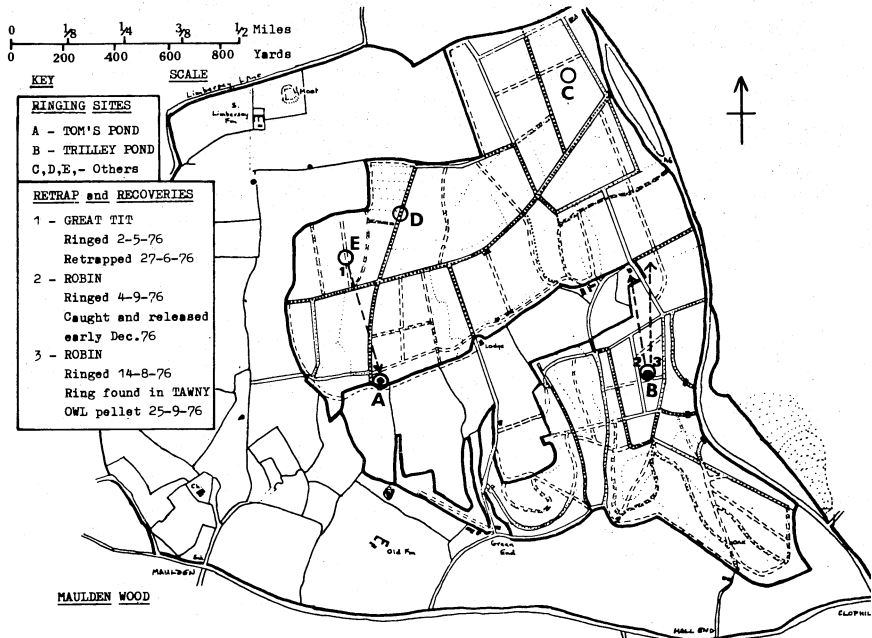
Species	Tom's Pond	Trilley Pond	Others	Total	B.T.O. Moults Cards
Turtle Dove		1		1	—
Jay		7	1	8	1
Wren		3	6	9	1
Duncock	5	31	7	43	4
Grasshopper Warbler			1	1	—
Garden Warbler	2		4	6	—
Blackcap	1	5	1	7	—
Whitethroat	1		4	5	—
Lesser Whitethroat			1	1	—
Willow Warbler		6	11	17	—
Chiffchaff	1	1		2	—
Woodwarbler		1		1	—
Goldcrest		1	2	3	—
Spotted Flycatcher	1	6		7	—
Robin	5	36	2	43	2
Blackbird	2	15	5	22	—
Song Thrush	1	2	3	6	—
Marsh Tit	2	2		4	—
Willow Tit		6		6	2
Blue Tit	19	62	3	84	3
Coal Tit	7	30	4	41	1
Great Tit	11	20	3	34	4
Long-tailed Tit	7	3		10	—
Tree Sparrow	27	8	7	42	3
Chaffinch	3	13	1	17	4
Bullfinch	21	33	4	58	2
Hawfinch		3		3	—
Greenfinch	10	11	3	24	5
Goldfinch	19	1		20	1
Linnet	9	1	2	12	—
Redpoll		3	1	4	—
Yellowhammer	21	3	1	25	3
Total	175	314	77	566	36

TABLE 2

Month	No. of Visits	Birds Ringed
Jan.	—	—
Feb.	—	—
Mar.	1	5
Apr.	2	6
May	4	47
June	5	149
Jul.	5	124
Aug.	5	158
Sep.	2	58
Oct.	1	—
Nov.	—	—
Dec.	2	19

TABLE 3

Retrapped Species	No. of Birds retrapped	Notes
Dunnock	10	One 3 times
Garden Warbler	1	
Blackcap	1	
Willow Warbler	1	
Robin	4	
Blackbird	1	Twice
Willow Tit	3	One Twice
Blue Tit	1	
Coal Tit	2	
Great Tit	2	
Long-tailed Tit	1	
Bullfinch	5	
Redpoll	1	
Total	33	



REPORT OF THE RECORDER FOR SLUGS & SNAILS (Mollusca)

I feel that my reports are monotonously the same year after year. This is the third year running that I have had to report that life has been made very difficult for a recorder of slugs and snails. Each time I have had to blame the very dry weather but at least last year I was able to say that I had concentrated my efforts on fresh-water habitats. I cannot even say that this time because so many of our streams, ponds and ditches dried up completely.

I feel that of all the invertebrate groups the slugs have probably suffered most. They are the most dependent upon moisture of all invertebrates, having virtually no protection against desiccation. Their only hope is to burrow down deep into the soil and wait for more favourable conditions. Last year the soil just became harder and harder, making it even more difficult for these soft bodied creatures to penetrate deeply enough, especially to lay their eggs. Even now after all the rain we have had since the autumn it is still very difficult to find slugs, although the snails seem to be making a 'come back'.

It is therefore quite incredible that I can report two very notable finds in Bedfordshire during 1976. Shuttleworth, which is mainly on acid soils with only a small amount of calcareous clay, yielded the minute species *Acicula fusca* (Montagu). This very minute species is very easily overlooked, even when present, due to its size. I have found it twice near Studham, which you would think would make it a Bedfordshire species, but unfortunately due to county boundary changes the credit has to go to Hertfordshire.

The other notable find was made at Dell Farm by Dr. Adrian Rundle. He was not looking for snails at the time but took a sample of soil to sieve at home to look for minute species of woodlice etc. As you will read in his report he found his woodlice but he also found a very minute snail, *Helicodiscus singleyanus inermis*, and this proved to be not only a new vice county record for Bedfordshire but also the first record for England. Previously there had been one isolated specimen found in the Channel Islands and one specimen in Wales.

During 1976 the Atlas of the Non-Marine Mollusca of the British Isles has been published and it is very satisfying to be able to pick Bedfordshire out on the distribution maps. We certainly are among the best recorded counties in the British Isles. It is also interesting to see that we have a fair share of the rarities of the mollusc world.

ACKNOWLEDGEMENTS

My thanks to Miss B.M. Clutton, Dr. and Mrs. J.G. Dony, Mr. T. Peterkin, Dr. A.J. Rundle and Mr. R.J. Woolnough for their records and specimens.

E.B. RANDS

REPORT OF THE RECORDER FOR FISH (Pisces)

This has been my first season as Fish Recorder and since work on fish distribution in the county began in April 1976, things have progressed at a reasonably steady rate. However, I have been disappointed by the very small percentage of B.N.H.S. members who submitted records.

So far, we have recorded 26 species of fish and have received records from a total of 49 tetrads. Nevertheless, there is still a great deal of work to be done and we need much more information on the range and distribution of even the common species. In time, when the distribution maps are in a more "healthy" state, I hope they will be published in this Journal. But until then I think the tetrad lists will give you some idea of the work which has been done.

As for the records which we have already, several are of particular interest. The Grass Carp, reported from the Bedford Estates at Woburn, is a non-indigenous species which has been introduced experimentally into England in order to help control the growth of aquatic plants. The last record I know of for Spined Loach in Bedfordshire was reported in the 1948 issue of this Journal, in which Mr. Soper, the Society's original Fish Recorder, tells how this species was unexpectedly found in the Longholme Boating Pool at Bedford. Our more recent report comes from the River Ivel at Tempsford, and it is interesting to note that as far as "official" records are concerned, this shows a gap of some 28 years! The Chub is a common species found primarily in running water. Therefore, it was with great interest that I received two records of this species from "still" waters in the county — one from the Bedford Estates and the other from Stewartby Lake. Whilst this is not unknown, it is certainly very uncommon and the reason for it is open to speculation. They may be introduced by anglers, or perhaps they find their way in by feeder streams. On the other hand it may be due to natural causes — i.e., their eggs attach themselves to the legs of ducks or geese and are thus transported in this manner.

The effects of the drought upon the fish life of Bedfordshire were certainly not too bad when compared with other parts of the country. The Anglian Water Authority's Assistant Director of Fisheries reported: "A significant reduction in spawning areas on some of the smaller totally enclosed waters. Some fish mortalities occurred due to the evaporation of enclosed waters, especially regarding Trout. However, the Great Ouse largely escaped major destruction and on linear waters mortalities were as would be expected during a normal summer."

I know that fish are not the most straightforward things to identify in the field, so I really am indebted to the following (B.N.H.S. members indicated by *) who made very valuable contributions to our fish records:

G.M. Buchanan*; M. Clark*; O. Clark; Dr. N. Dawson*; T. Dixon (Stewartby Water Sports Club Angling Section); J.T. Firkins (Texas Instruments Angling Club); R. Foster; M. Green*; E. Johnson; Luton Hoo Estate; M. Paine; M.E. Primett; Mrs. E.B. Rands*; N. Street (Bedford Esters); A. Turvey; T. Weston; S. Whitelock; H.J. Wilson (London Anglers Association).

Pike *Esox lucius* — 28 tetrads.

92BC, 93LRZ, 94V, 95Y, 03X, 04ABDIP, 05C, 06H, 13NXZ, 14LMX, 15FGILRST.

Perch *Perca fluviatilis* — 34 tetrads.

92BC, 93LRZ, 94V, 95Y, 03JKX, 04ABDHIPU, 05C, 06H, 11E, 12A, 13CNXZ, 14LMXY, 15FGLRS.

- Roach *Rutilus rutilus* – 33 tetrads.
92BC, 93LR, 95Y, 03EJKQX, 04ABDIPU, 05C, 06H, 11E, 12A, 13CNXZ,
14LMXY, 15FGLRS.
- Rudd *Scardinius erythrophthalmus* – 27 tetrads.
92BC, 93LRUZ, 94V, 03EJQX, 04ABHZ, 06H, 13CNXZ, 14ELWX, 15LMS.
- Dace *Leuciscus leuciscus* – 11 tetrads.
95Y, 04U, 05C, 14WXY, 15FGLRS.
- Chub *Leuciscus cephalus* – 15 tetrads.
93LR, 95Y, 04ABPU, 05C, 14XY, 15FGLRS.
- Gudgeon *Gobio gobio* – 9 tetrads.
04PU, 14XY, 15FGLRS.
- Bleak *Alburnus alburnus* – 11 tetrads.
04PU, 05C, 14XY, 15FGLRST.
- Common Bream *Abramis brama* – 20 tetrads.
92BC, 93LRZ, 94V, 95Y, 03X, 04AB, 06H, 13CX, 14MX, 15FGLRS.
- Silver Bream *Blicca bjoerkna* – 2 tetrads.
92BC.
- Tench *Tinca tinca* – 26 tetrads.
92BC, 93LRZ, 94V, 03JKX, 04ABH, 06H, 11E, 12A, 13CNXZ, 14LX,
15 FGLRS.
- Carp *Cyprinus carpio* – 17 tetrads.
92BC, 93LRZ, 94V, 03JKQX, 04AH, 06H, 13XZ, 14MX.
- Crucian Carp *Carassius carassius* – 7 tetrads.
92B, 93R, 03QX, 06H, 14MX.
- Grass Carp *Ctenopharyngodon idella* – 1 tetrad.
93R.
- Zander *Stizostedion lucioperca* – 4 tetrads.
92BC, 93R, 13X.
- European Catfish *Silurus glanis* – 3 tetrads.
92BC, 93R.
- Eel *Anguilla anguilla* – 12 tetrads.
04ABDIP, 06H, 14L, 15FGLRS.
- Bullhead *Cottus gobio* – 5 tetrads.
95H, 14LM, 15R, 24C.
- 3-Spined Stickleback *Gasterosteus aculeatus* – 7 tetrads.
01U, 03Q, 11E, 13X, 14EY, 24C.
- 10-Spined Stickleback *Pungitius pungitius* – 3 tetrads.
01U, 03N, 04Z.
- Stone Loach *Noemacheilus barbatulus* – 3 tetrads.
04A, 14A, 15N.
- Spined Loach *Cobitis taenia* – 1 tetrad.
15R.
- Minnow *Phoxinus phoxinus* – 3 tetrads.
14MX, 15R.
- Ruffe *Gymnocephalus cernua* – 1 tetrad.
14X.
- Rainbow Trout *Salmo gairdneri* – 2 tetrads.
92B, 04A.
- Brown Trout *Salmo trutta* – 1 tetrad.
04A.

TONY PETERKIN

SPIDERS IN BEDFORDSHIRE

by T.J. Thomas, 142 Selbourne Road, Luton, Beds.

LITERATURE SURVEY :- Addenda

The spider list given in this journal (ref:18) – the numbering of references continue from that paper – was based upon the available literature up to 1974 and collecting in 1975. More literature sources have been found since. This knowledge, with that from private communications and some further species taken in 1975 and 1976, is noted below.

In the Bulletin of the British Arachnological Society Swann (ref:19) gives a short list of spiders taken at Deacon Hill, whilst Merrett (ref:20,21), in the same publication, notes further records for various counties including Bedfordshire. Most of these appear to have been covered by reference 15 and only the relevant species have been listed.

Two Bedfordshire naturalists have very kindly provided information from their own records. Dr. Verdcourt (ref:22) sent notes on spiders taken between 1941 and 1949. One species, *Erigone promiscua* (O.P-Cambridge), is new to the county though a male was taken in 1976. Dr. Chambers allowed me to examine his collection of spiders, each of which had been the prey of hunting wasps (ref:24). The information peculiar to the wasps has already been published (ref:25,26). The majority of identifications were by T.H. Savory for both sets of records.

The following list also contains the species (sic!) *Tegenaria gigantea* Chamberlin and Ivie, originally *T. atrica* (C.L. Koch), sometimes better known as "that hairy spider in the bath". For the saga surrounding this and closely related species see reference 23 and associated papers.

Not included in this list is *Theridion denticulatum* (Walckenaer) which is now recognised to be two very similar species, *T. mystaceum* (C.L. Koch) and *T. melanurum* (Hahn) (ref:15). I have not yet attempted to re-examine this particular group in my collection.

The following species, previously noted only from the literature (ref:18), have now been taken by me:

<i>Agroeca proxima</i> (O.P-Cambridge)	<i>Oxyptila sanctuaria</i> (O.P-Cambridge)
<i>Robertus neglectus</i> (O.P-Cambridge)	<i>Ostearius melanopygius</i> (O.P-Cambridge)
<i>Micrargus subaequalis</i> (Westring)	<i>Peponocranium ludicrum</i> (O.P-Cambridge)
<i>Hypomma cornutum</i> (Blackwall)	

LIST OF SPIDERS: Additions

Family AMAUROBIIDAE	
<i>Amaurobius ferox</i> (Walckenaer)	22
Family DYSDERIDAE	
<i>Segestria senoculata</i> (Linnaeus)	24
Family GNAPHOSIDAE	
<i>Drassodes cupreus</i> (Blackwall)	24
<i>Herpyllus blackwalli</i> (Thorell)	21
Family CLUBIONIDAE	
<i>Clubiona stagnatilis</i> Kulczynski	24
<i>C. trivialis</i> C.L. Koch	
Family THOMISIDAE	
<i>Xysticus cristatus</i> (Clerck)	22,24
<i>X. ulmi</i> (Hahn)	
<i>X. bifasciatus</i> C.L. Koch	

	<i>Oxyptila practicola</i> (C.L. Koch)	
	<i>Philodromus rufus</i> Walckenaer	
Family	SALTICIDAE	
	<i>Salticus scenicus</i> (Clerck)	22
	[<i>Heliophanus cupreus</i> Walckenaer]	21,24
	<i>Marpissa muscosa</i> (Clerck)	
	<i>Evarcha falcata</i> (Clerck)	
Family	LYCOSIDAE	
	<i>Pardosa monticola</i> (Clerck)	
	<i>P. amentata</i> (Clerck)	24
	<i>P. proxima</i> (C.L. Koch)	
	<i>Xerolycosa nemoralis</i> (Westring)	
	<i>Alopecosa pulverulenta</i> (Clerck)	24,25
	<i>A. accentuata</i> (Latreille)	24
	<i>Trochosa ruricola</i> (Degeer)	22
Family	PISAUROIDAE	
	<i>Pisaura mirabilis</i> (Clerck)	22,24
Family	AGELENIDAE	
	<i>Tetrrix denticulata</i> (Olivier)	
	<i>Tegenaria gigantea</i> Chamberlin and Ivie	23
	<i>T. domestica</i> (Clerck)	22
	<i>Hahnia pusilla</i> (C.L. Koch)	
Family	THERIDIIDAE	
	<i>Theridion impressum</i> (L. Koch)	
	<i>Enoplognatha ovata</i> (Clerck)	22
	<i>E. thoracica</i> Hahn	
Family	TETRAGNATHIDAE	
	<i>Tetragnatha extensa</i> (Linnaeus)	22
	<i>T. pinicola</i> (L. Koch)	
	<i>T. nigrita</i> Lendl	
	<i>Pachygnatha clercki</i> (Sundevall)	22
	<i>Meta segmentata</i> (Clerck)	22
Family	ARANEIDAE	
	<i>Araneus diadematus</i> Clerck	22
	<i>A. patagiatus</i> Clerck	
	<i>A. sturmi</i> Hahn	
	<i>Zygiella x-notata</i> (Clerck)	22
Family	LINYPHIIDAE	
	<i>Walckenaera incisa</i> (O.P.-Cambridge)	
	<i>W. dysderoides</i> (Wider)	
	<i>Erigonidium graminicola</i> (Sundevall)	
	<i>Oedothorax retusus</i> (Westring)	21
	<i>Silometopus reussi</i> (Thorell)	
	<i>Troxochrus scabriculus</i> (Westring)	
	<i>T. cirrifrons</i> (O.P.-Cambridge)	
	<i>Collinsia distincta</i> (Simon)	
	<i>Erigone promiscua</i> (O.P.-Cambridge)	22
	<i>Leptorhoptrum robustum</i> (Westring)	
	<i>Porrhomma convexum</i> (Westring)	

SUMMARY

It is now not unreasonable to assume that the literature on Bedfordshire spiders has been fully covered. Furthermore, it can no longer be said that, with respect to spiders, Bedfordshire is under recorded (ref:5), for the list now stands at 262 species.

ACKNOWLEDGEMENTS

Many people have helped, with specimens particularly, and I would like to thank them all for this help.

REFERENCES

18. Thomas T.J. (1974) "Spiders in Bedfordshire. A literature survey." The Bedfordshire Naturalist. No.29, 43-49.
19. Swann P.S. (1969) "Spiders from Deacon Hill, Bedfordshire". Bulletin, British Arachnological Society, 1, (2), 18.
20. Merrett P. (1969) "New county records of British Spiders". Bulletin, British Arachnological Society. 1, (2), 19.
21. Merrett P. (1975) "New county records of British Spiders". Bulletin, British Arachnological Society. 3, (5), 140-141.
22. Verdcourt B. – Private communication.
23. Crawford R. and Locket G.H. (1976) "The occurrence of *Tegenaria gigantea* Chamberlin and Ivie (1935), in North America and Western Europe". Bulletin, British Arachnological Society, 3, (7), 199.
24. Chambers V.H. Loan of spider collection.
25. Chambers V.H. (1944) "Notes on *Priocnemis* Schdte (*Hym; Pompilidae*) in Bedfordshire". J.Soc. Brit. Ent. 2, (6), 197-207.
26. Chambers V.H. (1949) "The Hymenoptera Aculeata of Bedfordshire". Trans. Soc. Brit. Entomology. 9, (4), 197-252.

REPORT OF THE RECORDER FOR DRAGONFLIES (Odonata)

1976 was another good season for this group, although the prolonged drought did dry up some good waters, like the Marston Thrift ditch, the three Wavendon Heath ponds, and some of the Cople pits. It will be interesting to see how much of their fauna survives. On several occasions in the late summer big hawkers (*Aeshna* sp.) were observed laying their eggs on pond margins, well above the existing water level, as if in anticipation of returning normality.

The highlight of the year was the printing in late spring of 50 copies of a booklet "Dragonflies of Bedfordshire, a guide to their identification". This project would not have got off the ground without the encouragement and help of Mrs. E.B. Rands and Dr. A.J. Rundle, and I would like to thank them both very warmly. The booklet was hand-coloured by Mrs. Rands' youngest daughter and by my three children and was sold for 60p – any profits going

into the Society's funds. It went well and a further 100 copies were produced during the summer. The purpose of the booklet was to stimulate interest in this beautiful but neglected group of insects, so it was perhaps disappointing that its production did not result in a flood of new records in the county. As in the past, I am very much indebted to Dr. B.S. Nau, T.J. Thomas, A.R. Outen, J.M. Green and Mrs. E.B. Rands for supplying records, but as stressed in the summer (1976) newsletter, much of the Luton, Dunstable, and Leighton-Linslade areas have not yet been adequately covered.

In this report I am including a list of the 18 Bedfordshire species, with the 10km squares where they have been recorded since 1973, hoping to stimulate some of you to fill the gaps. Figure 1 shows the number of species recorded in the 10km squares and figure 2 shows the distribution of the most recorded species, the Common Ischnura (*Ischnura elegans*).

In the spring I received a request from the Nature Conservancy Council headquarters in London to check on the site of an old record of the scarce Green Lestes (*Lestes dryas*). One female had been taken in 1950 at the Wavendon Heath Ponds. I made two visits to this site during this damselfly's flight period but drew a blank. Apparently there have been no recent records of this insect. It breeds in very shallow ponds and the general lowering of the water table may have contributed to its extinction.

All the old monographs on dragonflies are now out of print, so it is with excited anticipation that we await the publication soon of an authoritative new work on the group with coloured illustrations by Mr. C.O. Hammond. The distribution maps should include Bedfordshire records up to August 1976.

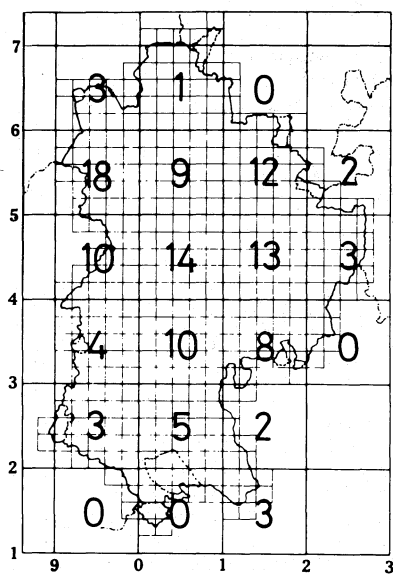


Fig.1

No. of Species / 10km. square

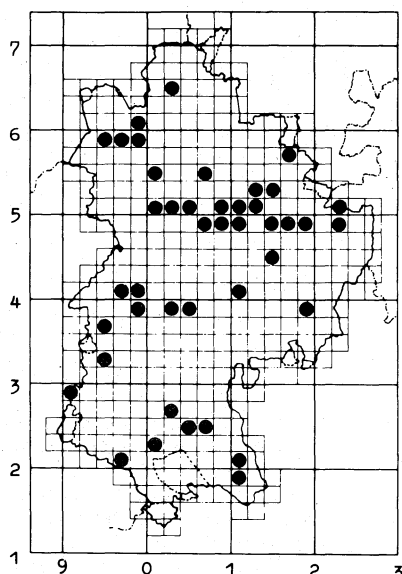


Fig.2

Distribution since 1973 of
COMMON ISCHNURA
Ischnura elegans

BEDFORDSHIRE DRAGONFLIES LISTED IN ORDER OF UBIQUITY
 1976 records in brackets

Species	10km squares	Total	Total tetrads
<i>Ischnura elegans</i>	92,93,94,95,96,02,03,04,05,06,11 (12) 13,14,15, (24) (25)	17	43
<i>Aeshna grandis</i>	92,93,94,95,96,02,03,04,05 (11) 13,14,15,24,25	15	37
<i>Enallagma cyathigerum</i>	92,94,95,96,02,03,04,05,11 (12) 13,14,15 (25)	14	26
<i>Aeshna cyanea</i>	94,95,02,03,04,05,13,14,15 (24) (25)	11	20
<i>Sympetrum striolatum</i>	94,95,02,03,04 (05) (11) 13,14 (15)	10	17
<i>Coenagrion puella</i>	93,94,95,03,04,05,14,15	8	17
<i>Aeshna mixta</i>	94,95,03,04 (11) 13,14 (15)	8	15
<i>Orthetrum cancellatum</i>	94 (95) 03,04,05,14,15	7	17
<i>Agriion splendens</i>	95,04,05,13,14,15	6	15
<i>Pyrrhosoma nymphula</i>	93,94 (95) 03 (04) 14	6	6
<i>Anax imperator</i>	94,95,03 (11) 14	5	7
<i>Platycnemis pennipes</i>	95,04,05,15	4	8
<i>Libellula quadrimaculata</i>	95,04,05 (15)	4	5
<i>Erythromma najas</i>	95,13,14	3	3
<i>Lestes sponsa</i>	95,04	2	2
<i>Libellula depressa</i>	95(15)	2	2
<i>Sympetrum sanguineum</i>	95,04	2	2
<i>Cordulegaster boltonii</i>	(95)	1	1

NANCY DAWSON

**REPORT OF THE RECORDER FOR
 GRASSHOPPERS AND CRICKETS (Orthoptera/Saltatoria)**

The last report from a recorder on this subject was in 1947 by the late Ray Palmer in the Bedfordshire Naturalist No.2 where he quoted for the Bedfordshire list; eight short-horn grasshoppers (which would have included ground-hoppers), five bush-crickets and one cricket. No details were given of the actual species.

In 1953 he wrote an article in the Bedfordshire Naturalist No. 8 giving a detailed account of all the known species in the county. The numbers in this article are the same as quoted in 1947 so it may be assumed that the species were the same.

Since 1953 some of the original Latin and English names have been changed. In future both Latin and English names will be those quoted in "Grasshoppers, Crickets and Cockroaches of the British Isles" by David R. Ragge (1965) Warne, London.

The following table repeats the original Bedfordshire check list of 1953 giving the present Latin name, the old quoted Latin name and the present English name.

TETRIGIDAE (Ground-hoppers)

Tetrix undulata	T. vittata	Common Ground-hopper
Tetrix subulata	-----	Slender Ground-hopper

ACRIDIDAE (Short-horn Grasshoppers)

Stenobothrus lineatus	-----	Stripe-winged Grasshopper
Omocestus viridulus	-----	Common Green Grasshopper
Omocestus rufipes	O. ventralis	Woodland Grasshopper
Myrmeleotettix maculatus	-----	Mottled Grasshopper
Chorthippus brunneus	C. bicolor	Common Field Grasshopper
Chorthippus parallelus	-----	Meadow Grasshopper

TETTIGONIIDAE (Bush Crickets)

Leptophyes punctatissima	-----	Speckled Bush-cricket
Meconema thalassinum	-----	Oak Bush-cricket
Pholidoptera griseoptera	-----	Dark Bush-cricket
Metroptera brachyptera	-----	Bog Bush-cricket
Conocephalus dorsalis	-----	Short-winged Cone-head

GRYLLIDAE (True Crickets)

Acheta domesticus	Gryllus domesticus	House-cricket
-------------------	--------------------	---------------

Comparing this check list with the information known in 1976, three species of short-horn grasshoppers i.e. Stripe-winged, Woodland and Mottled and one species of bush-cricket i.e. Bog Bush have not been recorded. However *Chorthippus albomarginatus* (Lesser Marsh Grasshopper) has been added to the list, having been found by me on a bank at the nature reserve end of Stewartby lake in September 1976.

The Woodland Grasshopper and the Bog Bush-cricket I feel may have disappeared from the county, the others should still be present.

The Biological Records Centre at Monks Wood in 1974 issued preliminary distribution maps of all the British species. From this information I do not believe any further new species will be added to the county list. However a lot of work is required before we know the actual extent of the distribution of the ones we do have in the county. Most of the species are only found in adult form from mid-June to mid-October so it can be appreciated that it is a very short season in which to gather information.

These are an interesting group of insects as they break into song on a warm summers day and each species has its own distinctive song. Listen carefully to their notes and see if you can detect more than one species present. In the evenings the species you will hear in hedgerows and brambles in this county will be the Dark Bush-cricket.

NOTE

Earwigs and Cockroaches were originally included under *Orthoptera* but are now separated under *Dermaptera* and *Dictyoptera* respectively.

ACKNOWLEDGEMENTS

I would like to thank Dr. N. Dawson, Dr. B.S. Nau, R.V.A. Wagstaff, T.J. Thomas, W. Champkin, A.R. Outen and D. Smart for records and at the same time appeal for further records from other members.

D.G. RANDS

REPORT OF THE RECORDER FOR

BUGS (Hemiptera – Heteroptera)

The year 1976 was exceptional in three respects. Firstly for the addition of thirteen species to the county list, bringing it to 267 species and thereby surpassing 50 percent of the British species total. Secondly for valued contributions of records from no less than nine people and specimens which included two species which were new to Beds. Indeed, a third species would have been in this category had not specimens of the species pair *Psallus perrisi/wagneri* been females and therefore unkeyable. Thirdly, the year was truly remarkable for the extreme heat and drought during the summer months, the most extreme for about two hundred years with temperatures around 35°C on occasion. The effect on the *Miridae* was dramatic, after the first week of August sweeping and beating were quite profitless in contrast to the situation even a few days earlier. Regular collecting in Maulden Woods Area brought out this sudden change most clearly and emphasises the value of working a site regularly. By contrast with the Mirid plant bugs the ground bugs, especially the *Lygaeidae*, were present in good numbers through into the autumn – what is not clear is to what extent this was a function of the Recorder's attention being concentrated on these and to what extent these bugs flourished in hot dry conditions.

The most remarkable species of the year is undoubtedly *Peritrechus nubilus*, which the literature describes as a coastal species of marshes, dry grassy banks and sandhills. This year the Recorder found *P. nubilus* in four Bedfordshire localities.

Records from diurnal fieldwork were supplemented by those from light traps operated at a number of sites. At Cockayne Hatley a "Rothamsted" trap with a tungsten lamp was operated nightly and produced 455 plant bugs of 35 species, plus four other species of bug, this was particularly interesting in being a garden site and indicates the potential of a garden. Table 1 presents a summary of the results from this trap. Light traps using a mercury vapour lamp and sheet were operated at various sites. These traps were quite different in that they were effective in attracting water bugs and only to a lesser extent the plant bugs. However the hours were different too, the mercury lights being run from dusk to midnight in contrast to the tungsten trap which was run from dusk until dawn on a time switch. Results for the mercury traps are presented in Table 2, only water bugs being listed.

The literature contains accounts of water bug captures at other localities and it is interesting to compare the 1976 Bedfordshire records with those for mercury traps at Rothamsted (Herts) in 1950, Banstead (Surrey) in 1952, and Wheathampstead (Herts) in 1959. The results for each are tabulated in Table 3 where totals have been reduced to percentages of the maximum species total at each site. It is notable that the commonest species is always either *Sigara dorsalis* or *Callicorixa praeusta*; also two species which are widespread and often abundant in water are scarce at light, these are *Sigara nigrolineata* and *Corixa punctata*. By contrast with these latter, *Sigara concinna* which is rarely encountered in water occurs in each of the four series of samples.

The Recorder's thanks are due to the following for records and specimens: S. Cham, T.S. Hollingworth, N.F. Janes, L. Lloyd-Evans, A. Norris, A.R. Outen, D.G. and E.B. Rands and I.P. Woiwod.

Finally, appended to this year's report is a bibliography of literature containing references to *Hemiptera-Heteroptera* in Bedfordshire. This list will be added to as other references come to notice.

Date	Locality	OS grid	<i>Callicorixa praeusta</i>	<i>Hesperocor. linnei</i>	<i>H. sahlbergi</i>	<i>Cyrmatia coleoptrata</i>	<i>Sigara dorsalis</i>	<i>S. falleni</i>	<i>S. lateralis</i>	<i>S. concinna</i>	<i>S. distincta</i>	<i>S. fossarum</i>	TOTAL
JUN 7	Maulden Wood, meadow	071387											0
14	Maulden Wood, compt.5a	069392											0
16	Flitwick Moor, car park	046354											0
21	Maulden Wood, Trilley Pln.	074384	1										1
22	Warden Hill, Luton, S end	092257	5				1	2	1				9
25	Maulden Wood, Trilley Pond	074385	6*				16*	17*	9*	2*			50*
JUL 6	Maulden Wood, Wellhead	071381	4		1		10	15	8				40
7	Shuttleworth, Lake	143444	3			1	3	1	5	1	1		15
12	Maulden Wood, S of Lodge	068384	3				2	5				1	11
14	Flitwick Moor, car park	046354	3				1	2					6
19	Maulden Wood, Barn	072388	1					2					3
21	Barton-le-Clay, Rectory	086304											0
26	Maulden Wood, Poplar Pln	066388	1				5	1	2				9
30	Dunstable, foot of Downs	003209						4	1	1			6
AUG 2	Maulden Wood, Trilley Pond	074385											0
9	Maulden Wood, compt.1c	070395	1				70	40	1				112
16	Maulden Wood, N of Lodge	067387					5	2	1				8
20	Flitwick Moor, car park	046354	9				22		28				59
20	Flitwick Moor, pools	048353	6*	1*			23*		28*				58*
23	Maulden Wood, Main Dr/5e	070391	1										1
23	Maulden Wood, Lodge	067388											0
31	Maulden Wood, Main Dr/5e	070391											0
			TOTAL 44	1	1	1	158	91	84	4	2	2	388

TABLE 2 Captures of waterboatmen (*Corixidae*) at UV light during summer 1976. (* denotes a sample catch, not all those bugs present).

	Bedfordshire Jun - Aug. 1976	Rothamsted Herts Aug. 1950	Banstead Surrey 19 Jul - 2 Aug 1952	Wheatthampstead Herts Jul - Sept 1959
<i>S. dorsalis</i>	100	16.2	100	22.1
<i>S. falleni</i>	57.6	12.0	14.8	12.3
<i>S. lateralis</i>	53.2	1.7	36.4	84.7
<i>Ca. praeusta</i>	27.9	100	47.7	100
<i>S. concinna</i>	2.5	3.5	1.1	27.6
<i>S. distincta</i>	1.3	0.2	9.1	0
<i>S. fossarum</i>	1.3	0.1	0	0
<i>H. sahlbergi</i>	0.6	1.2	9.1	27.6
<i>H. linnei</i>	0.6	0.1	1.1	0
<i>Cy. coleoptrata</i>	0.6	0	0	0
<i>C. punctata</i>	0	0.2	0	0
<i>S. nigrolineata</i>	0	0.1	0	0
<i>H. moesta</i>	0	0.1	1.1	0
<i>Cy. bonsdorffi</i>	0	0	1.1	0

TABLE 3 Comparison of Corixid water bugs at mercury light at various localities in S.E. England: percentages of maximum species.

(Rothamsted: Brown, E.S. 1954 Proc.R.Ent.Soc.Lond.(A)29,17-22

Banstead: Leston, D. and Gardner. A.E. 1953 Entom.Gaz.4,269-272

Wheatthampstead: Lansbury, I. 1961 Entomologist June 1961, 137-143)

ADDITIONS TO THE BEDFORDSHIRE LIST

ACANTHOSOMIDAE

Cyphostethus tristriatus (Fab.) — a female of this the Juniper Shield-bug was found by S. Cham on a fallen Beech bough in Maulden Wood, Duchess Drive, on 16th October 1976. The nearest plants of Juniper are probably at least one km distant in gardens in Maulden village. However, in Herts this bug has been found hibernating in Thuja, both this and *Chamaecyparis* are in the same family as Juniper and are present in Maulden Wood so it is possible that this may have been the origin of this specimen, which is anyway a surprising find.

LYGAEIDAE

Nysius ericae (Sch.)

— abundant on sparsely vegetated ground at a number of sites including a market garden west of Maulden Church on 7th August; Coopers Hill, Ampthill, amongst Heather on 10th August; Flitwick Moor on 11th and 19th September; and on various dates in the Maulden Wood Area in dry meadows and a sandpit, from 5th September to 10th October.

N. thymi (Wolff)

— a pair were swept from arable weeds in cereal stubble at Sewell on 18th August. This and the previous species were determined from Woodroffe's key (Ent.mon. Mag. Dec. 1959) and the critical measurements are plotted for a series of specimens, from the listed sites, in the diagram together with the species envelopes according to Woodroffe.

Peritrechus nubilus (Fall.)

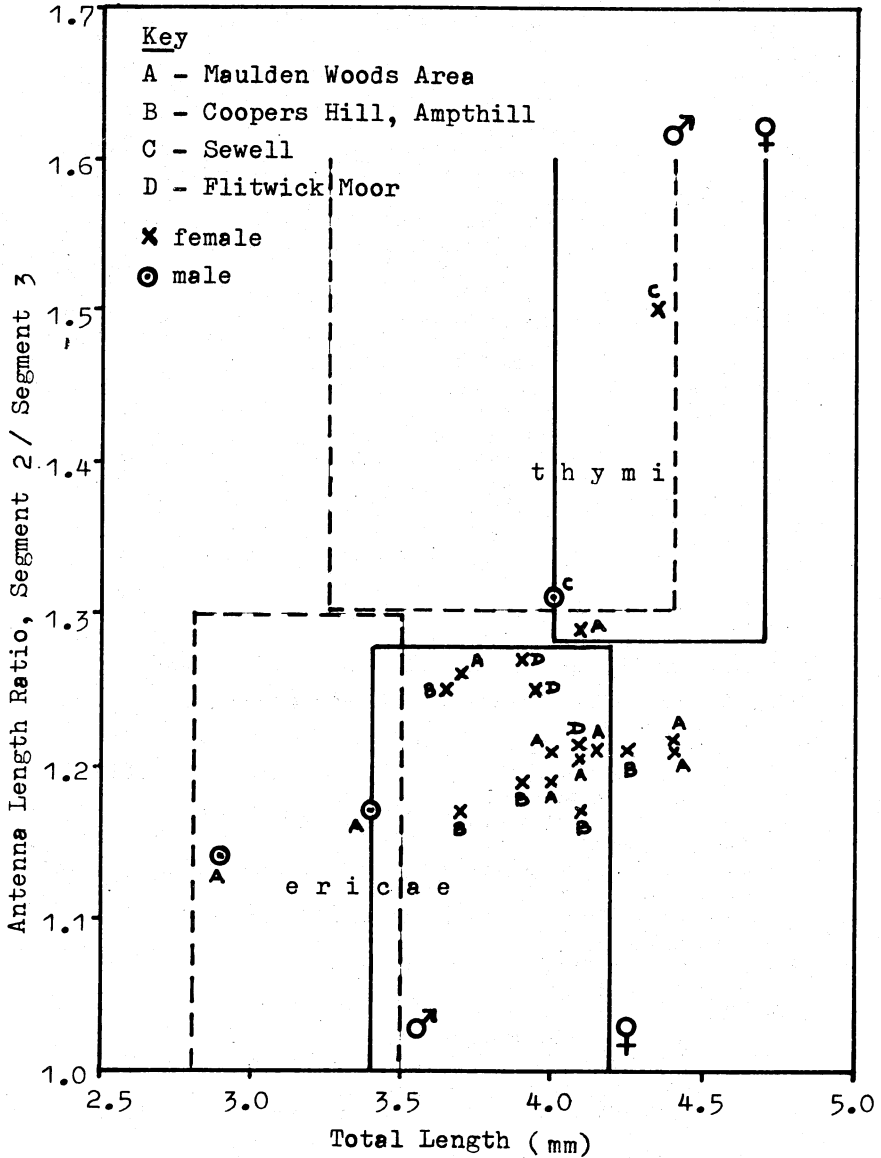
— Southwood and Leston cast doubt on the only inland record of this coastal species known to them (Land and Water Bugs of the British Isles, 1959). However, in the early autumn of 1976 I found specimens at a number of Bedfordshire sites which I attribute to this species, being clearly distinct from *P. geniculatus* (Hahn) with which it was associated at some sites. Diagnostic characters were the aspect ratio of the pronotum, thickness of 3rd antennal segment (variable in *geniculatus* I find), and the presence of a whitish spot at the base of the membrane. At Flitwick Moor I found a female on 11th September and a pair on 19th, all in a marsh; several were found in Maulden Woods in the period 3rd October — 7th November, and these were in dry habitats, typically in grass tufts in well-drained sites on clay or sand; in Kings Wood, Houghton Conquest, a female was found under Ivy on the ground, 24th October and on 31st October a female was found on the sandy roadside bank adjoining the wall of Potton Churchyard.

Trapezonotus arenarius (L.)

— as its specific name might indicate, this was found on sandy ground, under Heather and in dry grass heath on the same day in Maulden Woods Area, 25th July.

Drymus ryei (D. and S.)

— found at two sites, a female in a ditch adjoining Palmers Wood, Shuttleworth, on 26th September and in a ditch beside Maulden Wood, in the layby/picnic site on 16th October.



Nysius thymi / ericae in Bedfordshire
 Species divisions from Woodroffe (1959)

REDUVIDAE

Coranus subapterus (DeG.) — one specimen found under Heather at Coopers Hill, Ampthill, on 10th August.

MIRIDAE

Psallus alnicola D. and S. — present on Alder, as would be expected from its name, at Colworth House, Sharnbrook on 8th August.

Chlamydatus saltitans (Fall.) — in Maulden Woods Area in the same habitat as *Nysius ericae*, 5th September, one specimen collected.

Pilophorus cinnamopterus (Kirsch.) — on 3rd October a female was beaten from Scots Pine beside the A6 road at Maulden Woods.

Heterocordylus tibialis (Hahn) — a male and female of this early Broom bug were taken at light by D.G. Rands in a sandy meadow in the Maulden Woods Area on 7th June.

Neomecomma bilineatus (Fall.) — a male of this Aspen species was caught in the Rothamsted type light trap operated by I.P. Woiwod at Cockayne Hatley, 3rd July.

Lygocoris populi Leston — this bug was only described in 1957 and at the time of Southwood and Leston's 1959 book (op.cit.) had only been recorded from Surrey, Berks and Bucks. The host species are White and Grey Poplar and it was pleasing that a search of the latter in Maulden Woods area produced two males and two females on 31st July. The trees in question are an isolated group on the Lower Greensand are the only ones of their kind in the area.

BIBLIOGRAPHY OF BEDFORDSHIRE HEMIPTERA-HETEROPTERA

- 1923 Butler, E.A. "A biology of the British *Hemiptera-Heteroptera*"
Witherby, London
- 1934 Palmer, R. "Bugs, Aphids and Scales"
in "The natural history of the Hitchin Region", ed. R.L. Hine, Hitchin
and District Regional Survey.
- 1944 Verdcourt, B. "Records of Bedfordshire *Hemiptera*"
Ent.mon.Mag.80,75
- 1945 Shaw, H.K.A. "Additions to the list of Bedfordshire *Hemiptera-Heteroptera*"
Ent.mon.Mag.81, 183-185
- 1945 Verdcourt, B. "Further records of Bedfordshire *Hemiptera*"
Ent.mon.Mag.81,12
- 1946 (a) Verdcourt, B. "Bedfordshire water bugs"
Journal of the Beds Nat.Hist.Soc.1,23-26
- 1946(b) Verdcourt, B. "Notes on Bedfordshire *Hemiptera*"
Journal of the Beds Nat.Hist.Soc.1,26-27
- 1948 Brown, E.S. "A contribution towards an ecological survey of the
aquatic and semi-aquatic *Hemiptera-Heteroptera* (Water Bugs) of the
British Isles; dealing chiefly with the Scottish Highlands, and east and
south England"
Trans.Soc.Brit.Ent.9,3,151-195
- 1949 Johnson, C.G. and Southwood, T.R.E. "Seasonal records in 1947 and 1948
of flying *Hemiptera-Heteroptera*, particularly *Lygus pratensis* L. caught
in nets 50ft to 300ft above ground."
Proc.Roy.Ent.Soc.Lond.(A)24,128-130
- 1949 Verdcourt, B. "*Hemiptera*"
Bedfordshire Naturalist 3,27

- 1950 Verdcourt, B. "Further records of Bedfordshire *Hemiptera*"
Ent.mon.Mag.86,6-8
- 1950 Leston, D. "A note on *Strongylocoris leucocephalus* (L.) (*Hem.Miridae*)"
Ent.mon.Mag.86,109
- 1950 Southgate, B.J. and Woodroffe, G.E. "Some additions to the Beds, Bucks,
Middx. lists of *Hemiptera-Heteroptera* during 1950".
Ent.mon.Mag.86,301
- 1955 Masee, A.M. "The county distribution of the British *Hemiptera-
Heteroptera*, Second Edition."
Ent.mon.Mag.91,7-27
- 1955 Scudder, G.G.E. "*Sthenarus roseri* (H-S) (*Hem.Miridae*) new to
Bedfordshire"
Ent.mon.Mag.91,283
- 1959 Southwood, T.R.E. and Leston, D. "Land and water bugs of the British
Isles" Warne, London
- 1960 Southwood, T.R.E. "The flight activity of *Heteroptera*"
Trans.Roy.ent.Soc.Lond.112,173-220
- 1961 Leston, D. "The *Miridae* (*Hemiptera*) of Bedfordshire"
Proc.S.Lond.nat.Hist.Soc.1960,110-123
- 1961 Leston, D. and Southwood, T.R.E. "New county records of
Hemiptera-Heteroptera"
Ent.mon.Mag.97,32-33
- 1967 Morris, M.G. "Differences between the invertebrate faunas of grazed and
ungrazed chalk grassland: I. Responses of some phytophagous insects
to cessation of grazing."
J.appl.Ecol.4,459-474
- 1968 Morris, M.G. "..... II. The faunas of sample turves"
J.appl.Ecol.5,601-611
- 1969(a) Morris, M.G. "..... III. The Heteropterous fauna"
J.appl.Ecol.6,475-487
- 1969(b) Morris, M.G. "Populations of invertebrate animals and the management
of chalk grassland in Britain"
Biol.Conserv.1,225-231
- 1972 Dolling, W.R. "A new species of *Dicyphus* Fieber (*Hem.Miridae*) from
southern England"
Ent.mon.Mag.107,244-245
- 1973 Nau, B.S. "A checklist of Bedfordshire *Hemiptera-Heteroptera*"
Bedfordshire Naturalist 27,48-50
- 1974 Davis, B.N.K. and Lawrence, C.E. "Insects collected from *Parietaria diffusa*
Mert. and Koch and *Urtica dioica* L. in Huntingdonshire."
Ent.mon.Mag. 109, 252-254
- 1974 Nau, B.S. "Report of Recorder: Bugs (*Hemiptera-Heteroptera*)"
Bedfordshire Naturalist 28,16.
- 1975 Nau, B.S. "Report of Recorder: Bugs (*Hemiptera-Heteroptera*)"
Bedfordshire Naturalist 29,19-20
- 1976 Nau, B.S. "Report of Recorder: Bugs (*Hemiptera-Heteroptera*)"
Bedfordshire Naturalist 30,23-24

B.S. NAU

REPORT OF THE RECORDER FOR BUTTERFLIES AND MOTHS (Lepidoptera)

1976 turned out to be a good year for butterflies. On May 16th I saw a single specimen of (71) Grizzled Skipper *Pyrgus malvae* L. on Souldrop Tunnel, it was also reported from Dunstable Downs. This is a species that may be overlooked as it is not very showy and is difficult to follow in flight.

Sewell quarry was visited on several occasions where (65) Chalk-hill Blue *Lysandra coridon* Poda. (64) Common Blue *Polyommatus icarus* Rott. (69) Small Blue *Cupido minimus* Fuessl. were all plentiful, a good second brood of the latter was seen on the wing in early August. (72) Dingy Skipper *Erynnis tages* L. (73) Common Small Skipper *Thymelicus sylvestris* Poda. were both seen in good numbers.

(27) Marbled White *Melanargia galathea* L. was present in small numbers (24) Small Heath *Coenonympha pamphilus* L. was quite common. A very welcome sight was to see two (42) Dark Green Fritillary *Argynnis aglaia* L. feeding on Knapweed blossoms. Vic Arnold reports seeing a large Fritillary on Dunstable Downs in July which could well have been this species. Although the drought conditions lasted over a long period there were always flowers in bloom for the butterflies to feed on.

Another early species, (50) Duke of Burgundy Fritillary *Hamearis lucina* L., was seen on Dunstable Downs as was (63) Brown Argus Blue *Aricia agestis* Schiff. and generally on the lower slopes of the chalk both in May and again as a second brood in August.

(52) Purple Hairstreak *Thecla quercus* L. (55) Green Hairstreak *Callophrys rubi* L. and (54) White-letter Hairstreak *Strymonidia w-album* Knoch were all reported from Maulden Wood and the latter also from Marston Thrift.

(10) Wood White *Leptidea sinapis* L. was still to be seen in Maulden Wood.

The Vanessids were also well in evidence. I found quite a few larvae of (30) Red Admiral *Vanessa atalanta* L. on Stinging Nettle. A single specimen of the migrant species (34) Camberwell Beauty *Nymphalis antiopa* L. was found on the road-side at Holme Mills, Broom on 21st. August by Michael Dawson. I caught a single female (38) Comma *Polygonia c-album* L. which I kept for breeding and photography. This resulted in my being able to release 45 butterflies back into Maulden Wood in August and September after successfully photographing this species in all its stages.

The only species which did not seem to do very well this year were (68) Holly Blue *Celastrina argiolus* L. (5) Large Garden White *Pieris brassicae* L. which was scarce in its second brood.

Moth trapping continued at Maulden Wood where a number of scarce species were recorded, some of these were:—

(104) Lobster Prominent *Stauropus fagi* L. (131) Lesser Lutestring *Asphalia diluta* Schiff. (349) Grey Arches *Polia nebulosa* Hufn. (458) Dismal Brindle *Apamea ypsillon* Schiff. (559) Common Merveille du-jour *Griposia aprilina* L. (595) Large Marbled Tort *Nycteola revayana* Scop. (this species could have been mistaken for a Micro previously). (810) Large Seraphim *Lobophora halterata* Hufn. and (900) Orange Thorn *Angerona prunaria* L. This is part of an impressive list for Maulden Wood which will no doubt be published in due course.

Another record for (617) Nut-tree Tuffet *Colocasia coryli* L. was received for the Dunstable area, a previous record was from Whipsnade in 1972 so it would appear that this area is its stronghold in the county.

Migrant moths were also seen. Several reports were received for (97) Humming-bird Hawk *Macroglossum stellatarum* L. seen hovering to feed

at petunias and other favourite flowers. A late sighting was of one of these seen in Cheltondale Nursing Home on 26th November by Dr. Jeffreys.

We now look forward to a good season in 1977.

My thanks to the following members who sent in records or brought me specimens, Dr. N. Dawson, V.W. Arnold, C.W. Burton, S. Cham, B.D. Harding, T.S. Hollingworth, Dr. D. Jeffreys, T. Peterkin, P.C. Pilcher, I.P. Woivod and R.J. Woolnough.

Bracketed numbers and English names as Entomologists' Gazette Vols 10 and 11 (I.R.P. Heslop M.A. Published 1960).

W.J. CHAMPKIN

WINTER MOTH TRAPPING IN MAULDEN WOOD

by V.W. Arnold, A.J. Martin, D.G. Rands.

The results of moth trapping in Maulden Wood during the winter of 1975 - 76 were reported in the Bedfordshire Naturalist No.30.

This report covers the winter of 1976 - 77 and compares the results with the previous one.

The summer had been exceptionally hot and dry and the winter rather wet which does not make it an average year.

The aim was the same, namely to trap regularly, weather permitting, between the months of November and February with a special interest in the true winter species that would be expected to be on the wing during December and January.

During the previous winter eleven different trapping sites were used to obtain the maximum variation of habitat. This winter it was decided to choose one trap site only.

Two moths mentioned in the last report, (591) Dark Chestnut *Conistra ligula* Esp. and (595) Large Marbled Tort *Nycteola revayana* Scop., were not trapped during 1975 - 76 and these two species were to receive special attention during 1976 - 77.

The capture and release method using a sheet trap fitted with a mercury vapour lamp was used, as in the previous winter. As some moths are not attracted by light, the random searching of tree trunks and branches was also included. This had not been done previously.

All trapping was done between the hours of 8.00 p.m. and 9.00 p.m. and the minimum ambient temperature was also recorded.

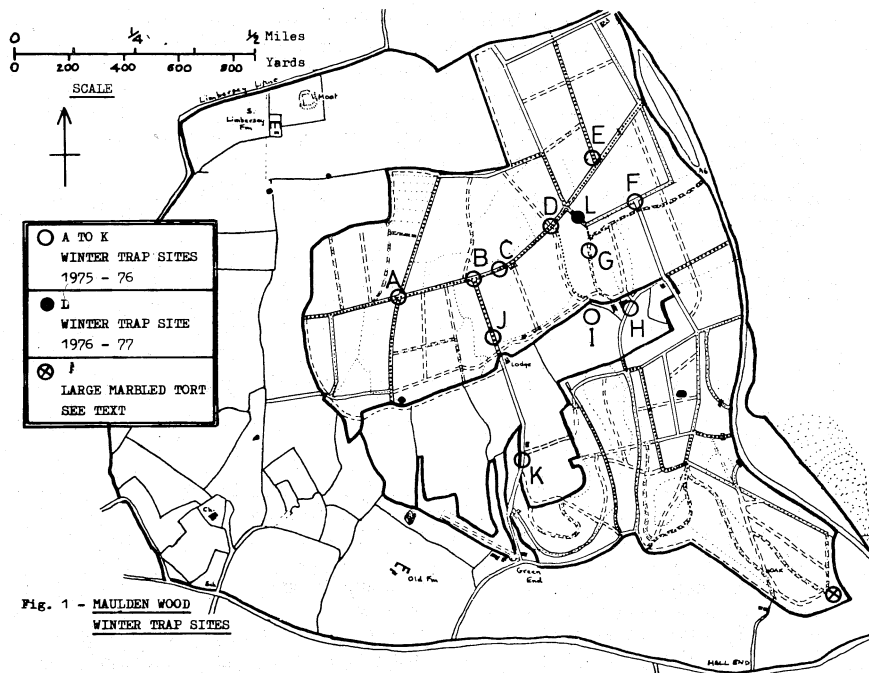
The location of the trap site was on boulder clay and is shown on the map (Fig. 1). This site was chosen for maximum shelter from the wind with a good variation of habitat and some tree cover in case of bright moonlight nights. The site has a fairly mature Oak - Ash wood on one side and a tall row of close planted Lawson Cypress on the other with a relatively young coniferous plantation behind.

The trap sites for the winter of 1975 - 76 are also shown on the map for reference together with a scale to give relative distances.

The location of the Large Marbled Tort which was searched for in daylight is also shown.

It can be seen from the Check List that 15 species were recorded during this last winter as against 17 for the previous winter.

The moths marked thus * on this Check List are the true winter species with which this report is mainly concerned. Except for (591)



Numbers in first column refer to
Check List of British Macrolepidoptera
by I.R.P.Heslop 1961

		1975 - 76	1976 - 77
148	December Egger <i>Poeciloscampa populi</i> L.	●	●
550	Common Sprawler <i>Brechionycha sphinx</i> Hufn.	●	●
557	Green Brindled Crescent <i>Ailophyes oxycanthae</i> L.	●	
571	Satellite <i>Eupsilia transverse</i> Hufn.	●	
575	Red Line Quaker <i>Agrochola lota</i> Clerck	●	
576	Yellow Line Quaker <i>Agrochola macilenta</i> Hüb.	●	
590	Common Chestnut <i>Conistra vaccinii</i> L.	●	●
591	Dark Chestnut <i>Conistra ligula</i> Esp.	●	●
595	Large Marbled Tort <i>Nyctea revayana</i> Scop.	●	
651	Herald <i>Scoliopteryx libatrix</i> L.	●	
669	March Usher <i>Alsophila sescularis</i> Schiff.	●	●
738	Shoulder Stripe <i>Parophila bediata</i> Schiff.	●	
826	November Carpet <i>Oporine dilutata</i> Schiff.	●	●
828	Common Winter Operophtera <i>brunata</i> L.	●	●
904	Early Umber <i>Theria ruficapraria</i> Schiff.	●	●
905	Spring Umber <i>Erannia leucophaea</i> Schiff.	●	●
906	Scarce Umber <i>Erannia surentieria</i> Hüb.	●	
907	Dotted Border <i>Erannia marginaria</i> F.	●	●
908	Mottled Umber <i>Erannia defoliaria</i> Clerck	●	●
920	Feathered Thorn <i>Colotois pennaria</i> L.	●	●
929	Pale Brindled Beauty <i>Phigalis pedaris</i> F.	●	●
930	Small Brindled Beauty <i>Apocheima hispidaria</i> Schiff.	●	●
	Total	17	15

Check List of Moths caught in Maulden Wood
between Nov.1st and Feb.28th during
Winters 1975 - 76 and 1976 - 77

		1976					1977							
		Nov. 1st	Nov. 8th	Nov. 15th	Nov. 22nd	Nov. 29th	Dec. 13th	Jan. 17th	Jan. 24th	Jan. 31st	Feb. 7th	Feb. 14th	Feb. 21st	Feb. 28th
* 148	December Eggar		2	34										
* 550	Common Sprawler	29	1											
* 590	Common Chestnut			1				2			1			
* 591	Dark Chestnut					1								
669	March Usher									1		2		
826	November Carpet	19		2										
* 828	Common Winter	2	2	1	9	12	44							
* 904	Early Umber							2						
905	Spring Umber									7		3		
906	Scarce Umber		2	2	4	1								
907	Dotted Border									1	1	3		
* 908	Mottled Umber	1				4		1		1				
920	Feathered Thorn	8												
* 929	Pale Brindled Beauty									5		1		
<u>Total</u>		59	7	40	13	18	44	2	3	0	15	2	9	0
<u>Temperature °C</u>		3	2	2	0	2	1	0	5	-1	4	2	4	-1

Fig.2 - Trapping Dates and numbers caught at Site L
over a one hour period between 8.00p.m. and 9.00p.m.

Dark Chestnut and (595) Large Marbled Tort the same species have been recorded for both winters.

In the case of the (591) Dark Chestnut this did not come to light but one specimen was found on the trunk of a tree on Nov. 29th.76 (Fig.2). The (595) Large Marbled Tort is found on Yew trees and Holly in winter and as no suitable habitat was around the trap site a daytime search was made on Dec.31st.76 at the southern end of the wood where there is a large extent of Holly. One specimen was found, the location of which is marked on the map (Fig.1).

With reference to Fig. 2 an analysis of the trapping is shown. Whereas in the previous report only the presence of a species was indicated, this winter, quantities were recorded, together with the ambient temperature. Temperature on its own has no significance to the number of species on the wing, as other factors contribute to an ideal mothing night i.e., pressure, humidity, rainfall, wind, cloud, moonlight etc. An interesting point however is that on two evenings when the temperature fell below freezing no moths were seen flying.

The (906) Scarce Umber was only found on tree trunks and branches and the majority of (828) Common Winter were as well although a few of these were attracted to the light.

CONCLUSIONS

It is interesting to note that the same winter species were caught whether the trap sites were varied as in the winter of 1975 - 76 or located at one site only during the winter of 1976 - 77.

Comparing the two histograms (Fig. 3) they are nearly a mirror image of each other. The significance of this is shown when a comparison of the dates in Fig. 2 are compared with the dates shown in Bedfordshire Naturalist No. 30 Fig. 1. Where the species generally appears to have emerged earlier in the year, this may have been the result of the dry hot summer.

Again referring to Fig. 2 it shows that quite considerable numbers of moths are on the wing even on cold wet winter nights but more important certain moths are the dominant species for one night and they are not recorded again. This may be the reason why some species are under recorded and that only by regular trapping, preferably on a weekly basis, shall we know what species are in the county.

ACKNOWLEDGEMENTS

The authors would like to thank the Forestry Commission and its staff for all the help and encouragement given so freely during this survey.

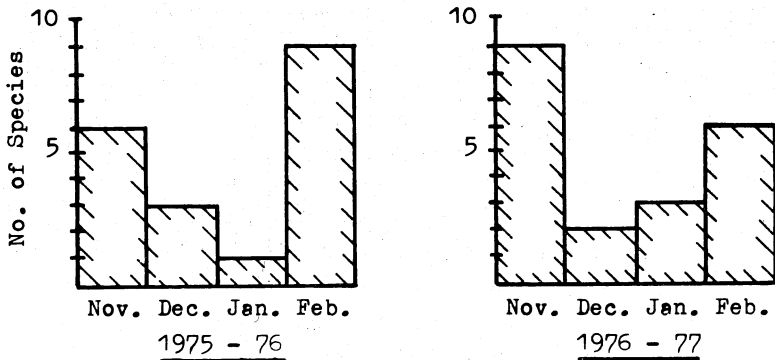


Fig. 3 - Relative Species Abundance

REPORT OF THE RECORDER FOR BEES, WASPS, ANTS ETC. (Hymenoptera)

For some years past I have been paying attention to lesser-known parasitic hymenoptera, particularly in the Proctotrupoid family *Diapriidae*, hopefully in time to ascertain something about their biology, of which little is known. It is likely that the *Belytinae* are parasites of the larvae of Lauxaniid flies, as they are most numerous in woodlands where the latter occur in profusion; but as many species share the same microhabitat, there must be interesting examples of interspecific and even intergeneric competition. Records have been published in journals with an international circulation as over the world there are few workers in this group. There being no point in repeating them here, I list my papers and notes for the record.

Records of *Belytinae* (Hym., Proctotrupoidea: Diapriidae), mainly from Bedfordshire. Ent.mon.Mag.(1968)104:217-8.

Large populations of *Belytinae* (Hym., Diapriidae).
ibid(1970)106:149-54.

Bedfordshire *Hymenoptera Belytinae*: with four species new to the British Isles. *ibid*(1971)107:182-3.

Hymenoptera Belytinae from Bedfordshire. *ibid*(1975)111:164.

A note on activity in *Belyta depressa* (Thoms.) (*Hym.*, *Diapriidae*). *loc.cit.* 210.

Taxonomic notes on the *Belytinae*, with a new species of *Pantoclis* Forster. (*Hym.*, *Proctotrupoidea, Diapriidae*). *J.Ent.*(B)(1974) 42:127-31.

New recent county records in my main groups are the minute sawfly attached to *Pyrus*, *Pristiphora moesta* Zadd. from Shillington, May 1975; and among the aculeates, an ant *Myrmica schencki* Em. from Wymington Tunnel Balk NR, September 1976, and the Sphecid wasp *Ectemnius zonatus* (Panz.) from Aspley Heath in 1974, and from my garden in Meppershall in 1976. It is surprising that in nearly 50 years' collecting of aculeates this conspicuous species has only just turned up, but it is uncommon throughout Europe.

The 1976 drought resulted in a massive reduction in the numbers of individuals and species of even common species of sawflies seen. The adults of this group, many species being difficult to find at any time, require humid conditions for flight, as do the eggs and larvae for mere survival, and many adults must have failed to emerge from the baked soil. In fact whole genera failed to appear to me. Of the abundant grass-feeding *Dolerus* (12 species) I only saw one adult *D.gonager* F. and none of the several species attached to *Juncus* and *Equisetum*. The large genus *Nematus*, attached to catkin-bearing trees mainly, failed to appear; and of the conspicuous *Tenthredo* species, the large *T.mesomelas* L. (*Arctium*) not one did I see, and the three yellow-banded species *T.arcuata* Forster, *T.perkinsi* Mor. and *T.acerrima* Bens., so often seen feeding on umbellifer heads, hardly appeared. Of the two ubiquitous *Athalia* species, normally seen swarming around low plants in our gardens from May onwards, I did not note any until one in Maulden Wood in mid-September. Some bees and wasps fared better: the common *Vespa* thrived, as did bumble bees, normal numbers of which were counted on lavender at home in August, and queens of *Bombus terrestris* L. were visiting *Clematis orientalis* in my garden in mid-November, when they should have entered diapause 3-4 months earlier. But this late activity is probably in individuals attacked by internal nematode worms leading to the suppression of hormone secretion. The smaller Sphecid wasps finished early owing to depletion (or absence) of prey such as aphids and leafhoppers. Dessication of the ground zone vegetation in Maulden and other woods reduced drastically the number of the smaller braconids, belytinids and cynipids taken by sweeping. After the past two blank years, should 1977 be a normal damp season with adequate temperatures, results are awaited with interest.

V.H. CHAMBERS

REPORT OF THE RECORDER FOR LADYBIRD BEETLES (Coleoptera – Coccinellidae)

This is the first report to have included the ladybirds. Records are limited and because of this it is not my intention to give detailed lists with 10km. or tetrad references. These will be compiled during 1977 with a view to giving an up-to-date situation in the next annual report.

The objective is to list the ladybirds identified to date with the range of localities in which they have been found. Additional notes are included in the hope that they will stimulate further interest.

In order that the next list will be as complete as possible I hope that you will send all records to me. Details of locality with the map reference are essential. Information on the habitat and notes on activity and status would make each record doubly valuable. Specimens whose identity are in doubt can be sent to me and I will arrange identification wherever possible. A good start could be made if all records of the commoner and more easily recognised species were sent in - 7 spot, 2 spot, 11 and 22 spot are fairly straightforward if carefully studied. A number of species are illustrated in colour in Chinery (1973).

Many of the records I have are the result of Bernard Nau's diligent work at Maulden and I am indebted for his help.

REFERENCES

- Pope R.D. 1953. "Coleoptera - Coccinellidae and Sphindidae Roy. Ent. Soc. Lond., Hbks for Identification of British Insects, 5,7.
Chinery, M. 1973 "A Field Guide to the Insects of Britain and Northern Europe.

SYSTEMATIC LIST

The order and nomenclature is taken from Pope (1953).

Exochomus 4-pustulatus (L.) Found at Stockgrove, Maulden, Campton Plantation and Heath and Reach. This is a black ladybird with 4 brick-red markings on the wing cases. Found in the bud clusters of Scots Pine (*Pinus sylvestris*) in all cases except one when an adult and numbers of pupal cases presumed to be of this species were found on Silver Fir (*Abies* spp.)

Anisosticta 19-punctata (L.) One specimen found at Wyboston. (Another found just outside the county boundary at Hinxworth).

Neomysia oblongoguttata (L.) Found at Stockgrove and Maulden on Scots Pine.

Tytthaspis 16-punctata (L.) Old Warden, Maulden, Wyboston, Henlow Grange, Milton Bryan, Stanbridge Ford, Flitwick Moor, Souldrop; Sundon, and on an island in a lake at Harrold.

This small yellow ladybird with black markings is often found in large numbers in grass tussocks. More than 360 were found in one such tussock at Maulden. Fun to hunt for!

Harmonia 4-punctata (Pontoppidan). On middle-aged Scots Pines at Stockgrove Park.

Anatis ocellata (L.) Several locations at Maulden. This splendid large ladybird is usually associated with Pine trees and dry sandy soils.

Aphidecta oblitterata (L.) Recorded once at Maulden. I have found this beetle on Sitka Spruce (*Picea sitchensis* L.) and Norway Spruce (*P. abies*) in Scotland, Derbyshire and Devon. A dull brown ladybird with an 'M' shaped mark on the thorax. Well worth looking out for!

- Thea 22-punctata* (L.) Maulden, Souldrop, Kempston, Shefford and Arlesey.
Locally common, often found in small colonies on weeds of waste ground. A small, bright yellow beetle with 10 or 11 spots on each wing case.
- Myrrha 18-guttata* (L.) Beaten from Pine and Larch (*Larix* sp.) trees at Maulden.
- Propylea 14-punctata* (L.) Found throughout the county but usually in ones or twos. Maulden, Old Warden, Houghton Conquest, Souldrop, Studham, Bedford, Marston, Cranfield and other localities.
- Calvia 14-guttata* (L.) Stockgrove Park, Potton Wood, Maulden, Marston and one in curtains of a house in Bedford.
- Rhizobiellus litura* (L.) Two specimens found near a cowshed sewage pond on the county boundary near Harpenden. This is a small, unmarked, golden coloured beetle easily overlooked and not at all like the 'conventional' ladybird.
- Chilocorus renipustulatus* (Rossi) Found in large numbers on the trunks of coppice Ash (*Fraxinus excelsior*) on the Sundon Hills, also on Ash at Marston Thrift, Kempston and Kingswood Houghton Conquest. All these were 10 ft. up or higher and were found on felled trees and on climbing up into the crown. One specimen found 8 ft. up a Beech (*Fagus sylvatica*) at Maulden. Like *Exochomus* this is a round black beetle but with only two brick-red spots.
- Coccinella hieroglyphica* L. Found at Coopers Hill and usually associated with Heather.
- Coccinella 11-punctata* L. Recorded at many locations across the county. Although supposedly found near salt marshes it has occurred very widely over the past two years. A red ladybird with 5 spots on each wing case (arranged 1, 2, 2) and a common spot on the join behind the thorax.
- Coccinella 7-punctata* (L.) Found everywhere often in large numbers and easily the most commonly recognised ladybird.
- Adalia 10-punctata* L. Found in numerous locations. There are a number of colour variations which often make identification difficult.
- Adalia bipunctata* (L.) Also well distributed throughout the county. Like the 10-spot, this beetle has a number of colour variations but the red ladybird with a black spot on each wing case is easily recognised.
- Adalia bipunctata* x
10-punctata This viable hybrid has been found at Maulden, Cockayne Hatley and a possible specimen of this type was collected at Kingswood, Houghton Conquest.

BEETLES IN A GARDEN LIGHT TRAP

by B.S. Nau, Ph.D., Recorder for Bugs

Throughout the summer of 1976 a light trap was run every night, from dusk until dawn, in a private garden in rural surroundings at Cockayne Hatley in east Bedfordshire. The site is situated about half a kilometre from the mixed woodland of Potton Wood and is located amongst arable farmland and orchards. The trap was of the well-known Rothamsted design with a 200 watt tungsten lamp and a time switch. The catch was collected daily.

The results of the analysis of the catch are set out in Table 1 where the data is grouped in half-monthly intervals for reasons of space. The catch of 284 beetles comprises twenty-five species of at least fourteen families, giving an indication of the richness of the beetle fauna to be found in a garden. The nomenclature used is that of Kloet and Hincks (1977), as is the sequence of families, but genera and species are in alphabetical order within families. One Staphylinid and two Clavicornia were not keyed to species, as also the Malthodes. For identification the following references were used: Joy(1932), Lindroth(1974), Balfour-Browne(1953) or Pope(1953) as appropriate.

In view of the unusually hot dry weather through most of the period covered by Table 1 it is worth pointing out that the hottest period was from 23rd July to 8th August, inclusive, the daily maxima exceeding 28°C at Luton Airport throughout this period. Night minima at this time were 15±2°C in the main but fell below 11°C twice. The largest catches of beetles were during this hot period, in particular *Lagria hirta* and *Rhagonycha fulva* peaked at this time. It is interesting that the former species has a distribution centred on warmer climates than Britain and would therefore be expected to be especially favoured by the exceptionally hot weather.

For comparison with the beetle data the author's report on *Heteroptera* in this same issue relates to the same site and period as the above.

ACKNOWLEDGEMENTS

Thanks are due to I.P. Woiwod for separating out the *Coleoptera* from the catches and making these available, also to M. Williams (Luton College) for the temperature data.

REFERENCES

- Balfour-Browne, F. 1953 "Coleoptera:Hydradephaga" Roy.Ent.Soc.Lond. Handbooks for the identification of British Insects, 4,3
- Lindroth, C.H. 1974 "Coleoptera:Carabidae" ibid 4,2
- Pope, R.D. 1953 "Coleoptera:Coccinellidae and Sphindidae" ibid, 5,7
- Joy, N.H. 1932 "A practical handbook of British beetles" Witherby, London
- Kloet, G.S. and
Hincks, W.D. 1977 "A check list of British insects: Pt 3 Coleoptera and Strepsiptera" Roy.Ent.Soc.Lond. Handbooks for the identification of British insects, 11,3 (Second edition)

Family	Species	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	Total								
CARABIDAE	<i>Amara apricaria</i> (Pay.)			2		10	2			14								
	<i>Bradycellus harpalinus</i> (Ser.)					1				1								
	<i>Demetrias atricapillus</i> (L)				1	1			1	3								
	<i>Nebria brevicollis</i> (Fab.)							1		1								
DYTISCIDAE	<i>Colymbetes fuscus</i> (L)	1								1								
SILPHIDAE	<i>Necrophorus investigator</i> Zet.				3					3								
STAPHYLINIDAE	spp.							1		1								
SCARABAEIDAE	<i>Aphodius contaminatus</i> (Her.)							1		1								
	<i>A. lapponum</i> Gyl.						2	1		3								
	<i>A. rufipes</i> L			1	2	4	2	3	1	4	17							
ELATERIDAE	<i>Melanotus erythropus</i> (Gm.)			1						1								
CANTHARIDAE	<i>Cantharis rufa</i> L			2						2								
	<i>Malthodes</i> spp.			14		1				15								
	<i>Rhagonycha fulva</i> (Sc.)			1	12	3				16								
	<i>R. lutea</i> (Mul.)			1						1								
COCCINELLIDAE	<i>Adalia bipunctata</i> (L)							1		1								
	<i>A. decempunctata</i> X <i>bipunctata</i>				1					1								
	<i>Coccinella septempunctata</i> L				5		1	1		7								
	<i>Propylea quatordecimpunctata</i> (L)					1				1								
TENEBRIONIDAE	<i>Lagria hirta</i> (L)			10	11	104	53	2	1	1	182							
ANTHICIDAE	<i>Anthicus floralis</i> (L)				1					1								
BRUCHIDAE	<i>Bruchus rufimanus</i> Boh.					1	4	1		6								
CURCULIONIDAE	<i>Sitona lineatus</i> (L)							1		1								
SCOLYTIDAE	<i>Scolytus multistriatus</i> (Mar.)		1			1				2								
Clavicornia (pt)	spp.				1	1				2								
TOTAL		0	1	0	1	27	16	126	67	22	9	2	9	3	0	0	1	284

TABLE 1

Beetle catches at light trap, Cockayne Hatley 1976, grouped by half-monthly periods.

REPORT OF THE RECORDER FOR WOODLICE, CENTIPEDES AND MILLIPEDES (Isopoda, Chilopoda and Diplopoda)

During the year a large number of records were added to the files. A special effort was made to sort out the problems of millipede identification so that a full report of this group could be included herein. One woodlouse, one centipede and twelve millipedes are recorded for the first time from the vice-county of Bedfordshire (no. 30).

Each of the three groups are covered separately below, the format remaining the same as in last year's report (Rundle, 1977).

WOODLICE AND WATER LICE (Isopoda)

The addition of another species to the vice-county list brings the total up to sixteen. Two previously recorded species still remain to be re-found. 113 tetrad records were obtained during the year, bringing the total to 518. 143 tetrads now have records (see figure 1). On a larger scale this represents 161 10 km. square records (see table 1).

All the species of isopod known from Bedfordshire are listed below. Species preceded by an * are new to the vice-county. The number in parentheses after each name denotes the number of tetrad records so far accumulated.

<i>Platyarthrus hoffmannseggi</i>	(19)
<i>Oniscus asellus</i>	(110)
<i>Philoscia muscorum</i>	(94)
* <i>Cylisticus convexus</i>	(1)
<i>Porcellio dilatatus</i>	(2)
<i>Porcellio scaber</i>	(84)
<i>Metoponorthus pruinosis</i>	(7)
<i>Armadillidium nasatum</i>	(-)
<i>Armadillidium vulgare</i>	(69)
<i>Trichoniscus pusillus</i> agg.	(74)
<i>Trichoniscus pygmaeus</i>	(15)
<i>Trichoniscoides sarsi</i>	(-)
<i>Androniscus dentiger</i>	(14)
<i>Haplophthalmus danicus</i>	(9)
<i>Asellus aquaticus</i>	(14)
<i>Asellus meridianus</i>	(6)

This year saw the publication of the provisional atlas for woodlice (Harding, 1976). In this work Bedfordshire records for *Trichoniscus pygmaeus*, *Haplophthalmus danicus* and *Platyarthrus hoffmannseggi* are particularly prominent. Two species not known from Bedfordshire so far must surely occur. *Trachelipus rathkei* which is frequent in Huntingdonshire and Northamptonshire and generally occurs in wet rough grassland and *Porcellio spinicornis* which has a generally scattered distribution and is likely to be found in limestone quarries and calcareous wall rubble.

CENTIPEDES (Chilopoda)

The one species new to the vice-county, *Haplophilus subterraneus*, is a common widespread species which was bound to be found. The total for Bedfordshire now stands at 20 species. 52 tetrad records were obtained, bringing the total to 216. 84 tetrads now have records (see Figure 2). 22 new 10 km. records brings the total to 122 (see Table 2).

All the species of centipede known from Bedfordshire are listed below (format as before).

<i>*Haplophilus subterraneus</i>	(4)	<i>Lithobius variegatus</i>	(14)
<i>Schendyla nemorensis</i>	(15)	<i>Lithobius forficatus</i>	(51)
<i>Chaetechelyne montana oblongocribellata</i>	(1)	<i>Lithobius melanops</i>	(16)
<i>Strigamia crassipes</i>	(2)	<i>Lithobius lapidicola</i>	(1)
<i>Strigamia acuminata</i>	(6)	<i>Lithobius aulacopus</i>	(1)
<i>Geophilus carpophagus</i>	(5)	<i>Lithobius muticus</i>	(1)
<i>Geophilus insculptus</i>	(3)	<i>Lithobius calcaratus</i>	(1)
<i>Necrophloeophagus longicornis</i>	(18)	<i>Lithobius crassipes</i>	(24)
<i>Brachygeophilus truncorum</i>	(9)	<i>Lithobius microps (= L. dubosquii)</i>	(37)
<i>Cryptops hortensis</i>	(6)	<i>Lamyctes fulvicornis</i>	(1)

The record of *Lithobius crassipes* from SP94 in last year's report was in error and is now deleted. No common species of British centipede now stands out as not being recorded from the vice-county, although doubtless further rare species will be found as recording continues.

MILLIPEDES (Diplopoda)

The special attention paid to the millipedes during the year has resulted in twelve new vice-county records bringing the total to twenty-three. Some problems of identification still exist. It has not been possible to name specimens of the difficult species pair *Cylindroiulus latestriatus/C. britannicus* and females of the pair *Ophiuulus pilosus/Iulus scandinavicus*. Specimens of each of these groups are being retained until they can be named and their aggregate records at the 10 km. level are included in Table 3 although they are omitted from the succeeding list and the tetrad summary map (Figure 3). 131 tetrad records were obtained, bringing the total to 239. 95 tetrads now have records and there are now 126 10 km. records.

<i>*Polyxenus lagurus</i>	(2)	<i>Blaniulus guttulatus</i>	(7)
<i>Glomeris marginata</i>	(31)	<i>*Archiboreoiulus pallidus</i>	(2)
<i>*Geoglomeris jurassica</i>	(3)	<i>*Boreoiulus tenuis</i>	(2)
<i>*Chordeuma proximum</i>	(1)	<i>Proteroiulus fuscus</i>	(11)
<i>Polymicrodon polydesmoides</i>	(15)	<i>*Ophiuulus pilosus</i>	(1)
<i>Brachydesmus superus</i>	(17)	<i>Cylindroiulus teutonicus</i>	(7)
<i>Polydesmus angustus</i>	(29)	<i>Cylindroiulus punctatus</i>	(27)
<i>*Polydesmus gallicus</i>	(6)	<i>*Cylindroiulus parisorum</i>	(1)
<i>*Polydesmus denticulatus</i>	(14)	<i>*Brachyiulus pusillus</i>	(1)
<i>Ophiodesmus albonanus</i>	(3)	<i>Ommatoiulus sabulosus</i>	(2)
<i>*Isobates varicornis</i>	(1)	<i>Tachypodoiulus niger</i>	(41)
<i>*Choneiulus palmatus</i>	(1)		

The record of *Cylindroiulus punctatus* from TL07 in last year's report was in error and is now deleted. Several of the new millipedes are worthy of special mention. According to Bocock et al (1973) *Geoglomeris jurassica* was only known from seven sites in the country. Both the Bedfordshire sites are of special interest. It was first found in soil under pieces of wood, polythene, etc. in the yard of the Dell Farm Field Centre on 1st May during the Student Weekend. This weekend also produced specimens of the following rare millipedes: *Archiboreoiulus pallidus* and *Boreoiulus tenuis* associated with the *Geoglomeris* and *Isobates varicornis* under the bark of a dead elm. Two shells of the new English snail *Helicodiscus singleyanus* were also obtained from a sample removed to obtain further specimens of *Geoglomeris*. The other *Geoglomeris* site is in the soil of one of the flower beds in the back garden of 51, Wychwood Avenue, Luton — guess who's? *Chordeuma proximum* was only recorded from Britain in 1964 (Nelson, 1964) and was known from only four vice-counties.

Of the species not known from Bedfordshire so far two uncommon ones are bound to occur; these are *Polydesmus coriaceus* and *Macrostermodesmus palicola*.

ACKNOWLEDGEMENTS

Although the Recorder only visited the county twice during the year the records increased quite considerably. This shows the debt an out-of-county recorder owes to those who supply records. Once again special thanks go to Mrs. E.B. Rands for all her help and records. In addition I would like to thank the following for records: Ms. H. Brough, Mr. W.J. Champkin, Dr. N. Dawson, Mrs. C.M. Dony and Mr. J.I. Sander.

REFERENCES

- Bocock, K.L.,
Heath, J. and
Blower, J.G. 1973. Some observations on the biology of the millipede *Geoglomeris jurassica* Verhoeff, 1915. J.nat.Hist., vol. 7, pp. 691-697.
- Harding, P.T. 1976. Provisional Atlas of the Crustacea of the British Isles. Part 1. *Isopoda: Oniscoidae* (Woodlice). Abbots Ripton (Natural Environment Research Council), 48 pp.
- Nelson, J.M. 1964. *Chordeuma proximum* Ribaut, a millipede new to Britain. Ann.Mag.nat.Hist., ser. 13, vol. 7, pp. 527-528.
- Rundle, A.J. 1977. Reports of Recorders: Woodlice, Centipedes and Millipedes. Beds.Nat., no. 30, pp. 13-19.

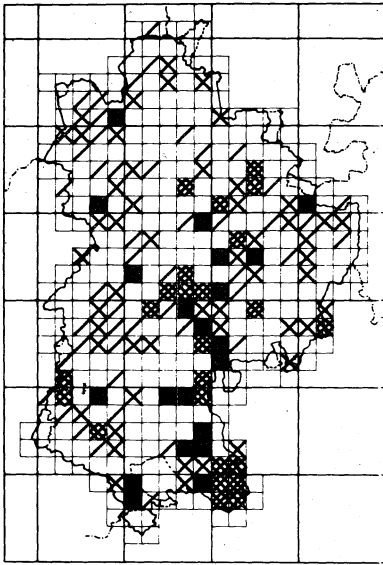


Figure 1
Isopod Summary Map

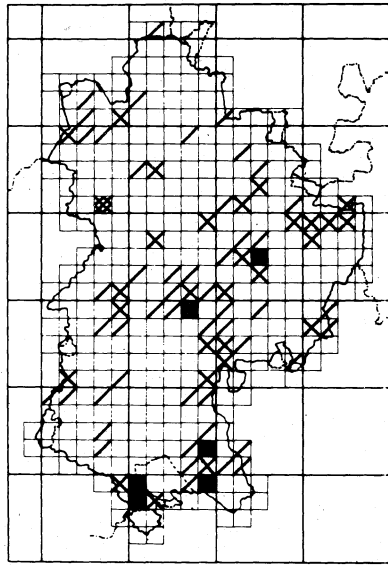


Figure 2
Chilopod Summary Map

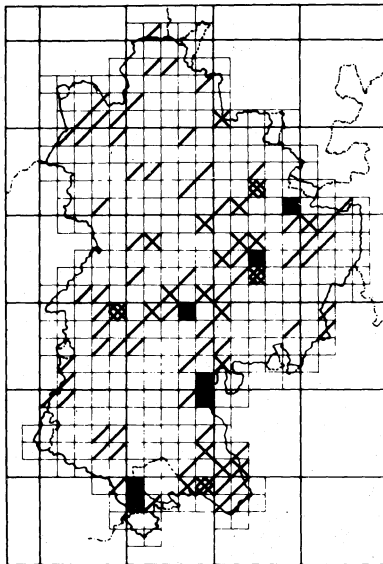


Figure 3
Diplopod Summary Map

KEY

**No. of
Species**

 1-2

 3-4

 5

 6 →

Grid Square	TL 07	SP 96	TL 06	TL 16	SP 95	TL 05	TL 15	TL 25	SP 94	TL 04	TL 14	TL 24	SP 93	TL 03	TL 13	TL 23	SP 92	TL 02	TL 12	SP 91	TL 01	TL 11	
<i>Platyarthus hoffmannsegi</i>	.	x	x	.	.	.	x	.	x	x	x	.	.	x	x	.	x	x	.	.	.	x	.
<i>Oniscus asellus</i>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Philoscia muscorum</i>	x	x	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Cylisticus convexus</i>	x	.	.	.	.	.	.	.	.	.	.	.	.
<i>Porcellio dilatatus</i>	x	.	.	x	.	.	.	.	.	.	.	.	.
<i>Porcellio scaber</i>	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Metoponorthus pruinosus</i>	x	.	x	x	x	.	.	x	.	.	.	x	.	x	.	.
<i>Armadillidium nasatum</i>
<i>Armadillidium vulgare</i>	.	x	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	.
<i>Trichoniscus pusillus</i> agg.	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	.	x	x
<i>Trichoniscus pygmaeus</i>	.	x	.	.	x	.	.	.	.	.	x	.	.	x	x	.	.	x	x	.	x	x	x
<i>Trichoniscoides sarsi</i>
<i>Androniscus dentiger</i>	.	x	.	.	x	.	.	.	.	x	x	.	.	x	.	.	.	x	.	.	.	x	.
<i>Haplophthalmus danicus</i>	.	x	.	.	x	.	x	.	.	x	x	.	x	x	.	.	x	.	.	.	.	.	.
<i>Asellus aquaticus</i>	x	x	x	.	.	x	x	.	x	.	.	x	x	.	.	.	.	.	.
<i>Asellus meridianus</i>	x	x	x	.	.	x	.	.	x	.	.	.	.	.	.	.	.	.	.

TABLE 1 DISTRIBUTION OF ISOPODS BY 10 KM. SQUARES

Grid Square	TL 07	SP 96	TL 06	TL 16	SP 95	TL 05	TL 15	TL 25	SP 94	TL 04	TL 14	TL 24	SP 93	TL 03	TL 13	TL 23	SP 92	TL 02	TL 12	SP 91	TL 01	TL 11	
<i>Haplophilus subterraneus</i>	x	.	.	.	.	.	.	.	.	.	.	.	.
<i>Schendyla nemorensis</i>
<i>Chaetechelyne montana</i>	x	.	x	.	x	x	x	.	x	x	x	x	.	x	.	.	.	x	
<i>Strigamia crassipes</i>	.	.	x	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.
<i>Strigamia acuminata</i>	x	.	.	x	x	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.
<i>Geophilus carpophagus</i>	x	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.
<i>Geophilus insculptus</i>	x	.	x	x	.	.	.	.	.	.	.	.	.
<i>Necrophloeophagus longicornis</i>	x	x	x	x	x	.	x	x	x	x	.	.	x	.	.	.	x	.
<i>Brachygeophilus truncorum</i>	x	x	.	x	x	x	.	x	x	.	x	x	.	.
<i>Cryptops hortensis</i>	x	.	.	.	.	x	x	x	.	x	.	.	.	.	x	.	.	x	.
<i>Lithobius variegatus</i>	.	.	.	x	.	x	.	x	x	x	x	x	x	x	.	.	x	.	.	.	.	x	.
<i>Lithobius forficatus</i>	x	x	.	.	x	x	x	.	x	x	x	x	x	x	x	.	x	.	.	.	.	x	.
<i>Lithobius melanops</i>	x	.	.	x	x	.	.	x	x	x	x	x	x	x	x	x	.
<i>Lithobius lapidicola</i>	x	x	x	x	.
<i>Lithobius aulacopus</i>	x	.	.	.	.	.	.	.	.
<i>Lithobius muticus</i>	x	.	.	.	.	.	.	.	.	.
<i>Lithobius calcaratus</i>	x	.	.	.	.
<i>Lithobius crassipes</i>	.	x	.	.	x	.	.	.	.	x	x	x	x	x	x	x	x	.	.	.	.	.	.
<i>Lithobius microps</i>	.	x	.	.	x	.	x	x	.	x	x	x	.	x	x	x	x	x	.	.	.	x	.
<i>Lamyctes fulvicornis</i>

TABLE 2 DISTRIBUTION OF CHILOPODS BY 10 KM. SQUARES

Grid Square	TL 07	SP 96	TL 06	TL 16	SP 95	TL 05	TL 15	TL 25	SP 94	TL 04	TL 14	TL 24	SP 93	TL 03	TL 13	TL 23	SP 92	TL 02	TL 12	SP 91	TL 01	TL 11	
<i>Polyxenus lagurus</i>	x	.	.	x	.	.	.	.	.	.	.	.	.
<i>Glomeris marginata</i>	.	x	x	x	.	x	.	x	.	x	x	x	x	x	.	.	.	x	.	.	.	x	.
<i>Geoglomeris jurassica</i>	x	.	.	.	x
<i>Chordeuma proximum</i>	x	.	.	.	.	.	.	.	.
<i>Polymicrodon polydesmoides</i>	x	.	.	x	x	.	.	.	x	.	.	.	x	x	x	x	.
<i>Brachydesmus superus</i>	.	.	.	x	.	.	x	.	.	.	x	.	x	x	x	.	x	x	.	.	.	x	.
<i>Polydesmus angustus</i>	x	.	x	.	.	x	x	.	.	x	x	x	.	.	x	x	.	.	x
<i>Polydesmus gallicus</i>	x	.	.	x	.	.	.	x	x	.	.	.	.	.	.	.	x
<i>Polydesmus denticulatus</i>	.	.	x	.	.	.	x	.	.	x	x	.	.	x	x	x	.	.	x	x	.	.	.
<i>Ophiodesmus albonanus</i>	x	.	.	.	x
<i>Isobates varicornis</i>	x
<i>Choneiulus palmatus</i>	x	.	.	.	.	.	.	.	.	.	.	.	.
<i>Blaniulus guttulatus</i>	x	.	.	.	.	.	.	.	.	.	.	.	.
<i>Archiboreoiulus pallidus</i>	x
<i>Boreoiulus tenuis</i>	x
<i>Proteroiulus fuscus</i>	x	x	x	x	x	.	.	x	.	.	.	.	.	x
<i>Ophiulus pilosus</i>	x	.	.	.	.	.	.	.	.	.	.	.	.
<i>Ophiulus/tulus</i>	x	x	.	.	.	x	.	.	.	x	x	.	.	x	.	.	.	.
<i>Cylindroiulus teutonicus</i>	x	.	.	.	x	x	.	.	x	.	.	.	x	.	.	.	x
<i>Cylindroiulus punctatus</i>	.	x	x	x	x	.	x	.	x	x	x	x	x	x	x	x	x	x	.	.	.	.	x
<i>Cylindroiulus latestriatus/britannicus</i>	x	.	.	.	x	x	.	.	.	.	.	.	.	.	.	.	x
<i>Cylindroiulus parisiorum</i>	x	.	.	.	.	.	.	.	.
<i>Brachyiulus pusillus</i>	x	.	.	.	.	.	.	.	.	.	.	.	.
<i>Ommatoiulus sabulosus</i>	x	.	.	.	.	.	.	.	.	.	.	.	.
<i>Tachypodoiulus niger</i>	x	x	.	.	x	x	x	.	x	x	x	x	x	x	x	x	x	x	x	.	.	.	x

TABLE 3 DISTRIBUTION OF DIPLOPODS BY 10 KM. SQUARES

REPORT OF THE RECORDER FOR

FLOWERING PLANTS, FERNS AND FERN ALLIES (Spermatophyta and Pteridophyta)

1976 was a profitable year in the study of the flora of the county, during which 851 additional tetrad records were made. This needs, however, to be compared with the 88,544 records made in the period of six years for the Bedfordshire Plant Atlas (1976). The additions were mainly of plants missed in the period of the survey but some no doubt reflect the change which is constantly taking place in the natural vegetation of the county. Of the 771 species known in Bedfordshire in 1801 there are 78 which apparently can no longer be found, but 381 additional species now occur. These latter include a few that may have been here all this time but have not been recorded, but most are newcomers. Some species not known in the county forty years ago are now widely distributed within it and others which were previously frequent are now presumed to be extinct. We appear to have lost one species about every two years and gained two about every year, but the gains and losses have been greater in number in recent years than at any previous time. Change in the flora makes it most desirable that surveys of plant distribution should be strictly limited to a few specified years.

The additional records made in 1976 make no marked difference to the analysis of species - area relationship given in the Bedfordshire Naturalist No. 30 except the cover achieved is increased by about 1%.

Two native species have been added to the flora. Soft Shield-fern (*Polystichum setiferum*) found in Holcot Wood (94K) has long been expected to be found in the county, but Blunt-leaved Pondweed (*Potamogeton obtusifolius*) may have been introduced into Battlesden Lake (92P) and not be permanent. Mrs. D. Smart reported Woad (*Isatis tinctoria*) growing spontaneously in her garden at Oakley (05G) and Mrs P. Ford found Perfoliate Honeysuckle (*Lonicera caprifolium*), last recorded in 1889, in a hedgerow, remote from houses, near Streatley (02U). This flowers much earlier than the common Honeysuckle and it would be helpful if members could look carefully at any early-flowering honeysuckles they may see. Five new wool aliens were found: *Anoda cristata* and *Sida spinosa* (both *Malvaceae*), *Iva xanthifolia* (*Compositae*), *Ibicella lutea* (*Martyniaceae* - a family not previously represented in Bedfordshire), and *Coronilla scorpioides* (*Leguminosae*). One new bird-seed alien, *Malope trifida* (*Malvaceae*) was found, appropriately at the Lodge at Sandy where it was good also to see Slender Rush (*Juncus tenuis*), last seen in the county in 1945. It is hoped that this may prove to be a permanent addition to the flora.

The dry hot summer was conducive of plants of wet habitats and the re-appearance of Bog Pimpernel (*Anagallis tenella*) at Stevington Bogs (95X) was the most welcome plant record of the year. Orange Foxtail (*Alopecurus aequalis*), not found during the survey, was recorded from two dried-up ponds (92I, 93G). The known range of distribution of a number of wetland species was extended.

In my last report I promised now to account for the additional ten-kilometre grid square records made during each year, but as these numbered 89 during 1976 my good intention is perhaps best forgotten.

JOHN G. DONY

REPORT OF THE RECORDER FOR MOSSES AND LIVERWORTS (Bryophyta)

It is difficult to be other than repetitive about the problems of Bryology in yet another summer drought but suffice it to say that the mosses and liverworts appear to have recovered well since then and that fieldwork was resumed as soon as practical.

Records have continued to increase but there has been little of great note, although an excursion to Rowney Warren with the Cambridge Botany School, on 26th February 1977, did produce *Leptodontium flexifolium*, which had been recorded there by Laflin in the nineteen-fifties, but not since. This plant is only recorded for three localities in the East Anglian region, two of which are in Bedfordshire.

Grimmia pulvinata should be added to the list for Flitwick Moor published in the 1974 journal. This takes the total number of species recorded for the moor to 101.

On the deficit side the moss with purple rhizoids which was reported in the 1973 journal as being so puzzling, has at last been identified as *Leptobryum pyriforme*, a species commonly found growing on flower pots, though often confusing in natural habitats. In fact mistakes of this kind are very frequent in Bryological identifications. *Cephaloziella* is a genus of minute liverworts which very few people will attempt to identify, as they are notoriously difficult. My specimens are always sent to leading authorities, but even they may change their minds. In consequence the specimen from Rowney Warren, which was recorded in the 1973 journal as *Cephaloziella stellulifera* has now been altered to *C. rubella*, the name which I had in my ignorance originally given it!

REFERENCES

- Outen A.R. 1973 Recorder's Annual Report. Beds.Nat. 28 p9-10.
Outen A.R. 1974 The Mosses and Liverworts of Flitwick Moor.
Beds.Nat. 29 p40-43.

ALAN R. OUTEN

REPORT OF THE RECORDER FOR LICHENS (Lichenes)

The past twelve months have been concentrated on recording by 10 km. squares. I now have records for all the Bedfordshire grid squares and the total number of species recorded for the county now stands at 115.

A summary of the number of species so far recorded in each square is given below:-

91-6	94-23	01-21	04-23	11-13	14-26	23-23
92-32	94-16	02-30	05-22	12-19	15-18	24-14
93-27	96-20	03-39	06-25	13-30	16-23	25-22

Site recording this year has been concentrated at Maulden Woods and as a result the list from this area totals 38 species. The comparatively small number of lichens growing in Maulden Woods may, in part, be due to the lack of suitable substrates for colonisation and also to the levels of sulphur

dioxide in the area. Unfortunately I only have one old record for a lichen found in the woods and this is for a now absent species *Lobaria pulmonaria* (Abbot 1800) a lichen once widespread throughout Britain but now restricted to the relatively unpolluted areas in the West of the country.

The majority of lichens found are crustose lichens mostly growing on man-made substrates such as concrete blocks, posts, horsetroughs, bricks and walls occurring in and around the woods. These substrates tend to be alkaline in nature and able to exert a neutralising effect on any sulphurous pollutants, thus allowing lichen communities to flourish. *Lecanora* species, in particular *Lecanora dispersa*, *Lecanora muralis* and *Lecanora campestris* are commonly found on these substrates, growing alongside *Xanthoria parietina* and various *Caloplaca* species.

Other substrates colonised include bark and tree stumps, fence posts and gates. The main coniferous areas of the wood tend to be poor in lichen species due to the acid nature of the conifer bark and its tendency to flake off very easily. *Lecanora conizaeoides*, *Lecanora dispersa* and *Lepraria incana* are the only species in any numbers, to grow in these areas.

Ground species are almost absent due to the highly acid conifer needle litter and to the considerable shade cast by the trees. However, where trees have been felled, *Cladonia macilenta*, a common lichen of tree stumps, develops readily and the acid soil of open ground encourages the growth of other *Cladonia* species such as *Cladonia coccifera* and *Cladonia coniocraea*.

A complete list of species recorded and their substrates is given below.
Buellia canescens (wall); *Caloplaca citrina* (concrete trough, wall); *C. hepiana* (wall); *C. holocarpa* (wall); *Collema tenax* (wall); *Cetraria glauca* (tree stump); *Cladonia coccifera* (ground); *C. coniocraea* (bark, ground); *C. fimbriata* (wall); *C. macilenta* (tree stump); *Hypogymnia physodes* (paling); *Lecanora atra* (wall); *L. calcarea* (concrete trough, wall); *L. campestris* (concrete trough, wall); *L. conizaeoides* (bark, paling, wall); *L. dispersa* (concrete trough, wall); *L. expallens* (bark, paling); *L. intricata* (wall); *L. muralis* (concrete trough, wall); *L. varia* (bark); *Lecidea lucida* (wall); *L. macrocarpa* (rock); *L. scalaris* (wall); *L. tumida* (wall); *Lepraria incana* (bark, wall); *Ochrolechia parella* (wall); *Parmelia saxatilis* (wall); *P. subrudecta* (wall); *Pertusaria amara* (bark); *P. pertusa* (wall); *Physcia adscendens* (concrete trough, wall); *P. caesia* (wall); *P. grisea* (concrete trough, wall); *Placynthium nigrum* (concrete trough); *Verrucaria muralis* (wall); *Xanthoria aureola* (concrete trough, wall); *X. parietina* (paling, concrete trough, wall).

I would like to thank the following members who have kindly sent me records and specimens throughout the year; E. Hollingworth, B.S. Nau, A.R. Outen, R.A. Porter, E.B. Rands and M. Williams.

FRANCES B.M. DAVIES

THE FUNGUS FORAY

by D.A. Reid Ph.D., Recorder for Fungi

The fungus foray, held at Shuttleworth Agricultural College on September 26th, with Dr D.A. Reid as leader, was attended by about 50 people who not only enjoyed the warm sunny autumn day but also the spectacular air-display from the local airfield.

Following the exceptionally hot dry summer fungi were scarce, but even so the list of species shows some interesting features such as the complete absence of *Russula* and *Lactarius* spp. Indeed scarcity of members of these two genera was

apparent throughout South-east England. In contrast the number of *Agaricus* spp. (6) is unusually high, and this again reflected the general situation in the region, where 'mushrooms' were reported as being abundant.

Most people are familiar with the field mushroom (*Agaricus campestris*) and the horse mushroom (*A. arvensis*). Both are white, and occur in pastures where they may form fairy rings. The field mushroom is usually less robust, and the cap soon becomes flattened, while the stipe bears a narrow, poorly developed simple ring which may be reduced to little more than a fringed zone. However an additional character of importance is the colour of the young gills which is a rosy pink. Identification can be readily confirmed with the aid of a microscope as *A. campestris* has a fertile gill-edge devoid of cystidia. The horse mushroom is usually larger, and the cap is slow to open, remaining strongly convex for some time, the ring is double and of the cog-wheel type, and the young gills are not rosy-pink. For accurate identification it is necessary to check the microscopic characters as it is easily confused with *A. nivescens* which has smaller spores [$5.6(-7) \times 4.4.5(-5)\mu$] and cheilocystidia in chains. *A. bisporus*, better known as the cultivated mushroom, is new to the county in its wild form. It has a brown scaly cap, an inferior ring, faintly reddening flesh, and 2-spored basidia. Another brown scaly species with reddening flesh which we collected was *A. langei*, but this has a pendent ring, 4-spored basidia and spores measuring $6.9 \times 4.5 \mu$; spore size is particularly important and serves to distinguish it from *A. silvaticus* in which the spores measure $5.6 \times 3.3.5 \mu$. Two other members of the genus found on this occasion were *A. xanthodermus* and *A. placomyces*, both poisonous and belonging to that group of species with yellow-staining flesh. *A. xanthodermus* is easily mistaken for the horse-mushroom, but is distinguished by the cap becoming bright yellow when bruised and even more readily by the vivid chrome yellow colour of the cut flesh in the base of the stem. *A. placomyces*, which is new to the county, shows similar colour changes, but here the cap is densely covered with blackish scales.

Two interesting species of *Lepiota* were found. *L. leucothites*, collected near the college, resembles a white mushroom until the caps are turned over and the gills seen to be white. This is also an addition to the county list. *L. badhamii* was said by Grove (1892) to be frequent in Bedfordshire, but if so its status has changed considerably as it is now a rarity and this is the first collection for very many years. It has a dark brown, felty tomentose cap, similarly coloured stipe and the entire fungus reddens on bruising.

Clitocybe sinopicoides, also a new county record, occurs with conifers and is recognised by having a brick-red cap and strong mealy smell when handled. It differs from *C. sinopica* in its smaller spores, $6.8 \times 3.4 \mu$.

Two small brown-spored agarics new to Bedfordshire were *Galerina vittaeformis* (= *rubiginosa*), with brown striate, campanulate cap and dark red-brown stipe which is entirely pubescent under a lens; and *Naucoria escharoides* – a common fungus of alder bogs, with honey-yellow to straw coloured cap, a fawn-brown stipe becoming yellowish above, amygdaliform roughened spores measuring $9.11.5 \times 5.5.6.5 \mu$ and cheilocystidia with a swollen base and a long narrow neck.

Psathyrella fatua sensu Lange, yet another addition to the county, was collected in some quantity, since it formed caespitose tufts of conical, brown fruitbodies, in which the caps were covered by a silvery arachnoid veil.

The remaining fungi were mostly common species but *Ganoderma lucidum* attracted attention because of its rich red-brown fruitbodies with shiny laccate stalks.

A total of 90 species was collected, of which 7 were new to the county, and one confirmed an old county record.

Agaricus arvensis Schaeff. ex Secr.; **A. bisporus* (J. Lange) Pilat;
A. campestris L. ex Fr.; *A. langei* (Møll.) Møll.; **A. placomyces* Peck;
A. xanthodermus Genev.; *Armillaria mellea* (Vahl ex Fr.) Kummer; *Baeospora*
myosura (Fr. ex Fr.) Sing.; *Bolbitius vitellinus* (Pers. ex Fr.) Fr.; *Boletus*
badius Fr.; *B. chrysenteron* Bull. ex St. Amans; *B. elgans* Schum. ex Fr.;
B. scaber Bull. ex Fr.; *Clitocybe phyllophila* (Fr.) Kummer; **C. sinopicoides*
 Peck; *Collybia cirrhata* (Schum. ex Fr.) Kummer; *C. dryophila* (Bull. ex Fr.)
 Kummer; *C. erythropus* (Pers. ex Fr.) Kummer; *C. peronata* (Bolt. ex Fr.)
 Kummer; *Conocybe tenera* (Schaeff. ex Fr.) Kühn.; *Coprinus atramentarius*
 (Bull. ex Fr.) Kühn.; *C. comatus* (Mull. ex Fr.) S.F. Gray; *C. micaceus*
 (Bull. ex Fr.) Fr.; *C. plicatilis* (Curt. ex Fr.) Fr.; *Flammulina velutipes* (Curt. ex
 Fr.) Karst.; **Galerina vittaeformis* (Fr.) Moser; *Gymnopilus hybridus* (Fr. ex
 Fr.) Sing.; *G. penetrans* (Fr. ex Fr.) Murr.; *Hohenbuehelia atrocaerulea* (Fr. ex
 Fr.) Sing.; *Hygrophoropsis aurantiaca* ([Von Wulf.] Fr.) Maire; *Hypholoma*
fasciculare (Huds. ex Fr.) Kummer; **Lepiota badhamii* (Berk. & Br.) Quél.;
L. cristata (Fr.) Kummer; **L. leucothites* (Vitt.) Orton; *L. procera* (Scop.
 ex Fr.) S.F. Gray; *L. rhacodes* (Vitt.) Quél.; *Lepista nuda* (Bull. ex Fr.) Cooke;
Lyophyllum decastes (Fr. ex Fr.) Sing.; *Marasmius androsaceus* (L. ex Fr.) Fr.;
M. epiphyllus (Pers. ex Fr.) Fr.; *M. oreades* (Bolt. ex Fr.) Fr.; *M. rotula* (Scop.
 ex Fr.) Fr.; *Mycena citrino-marginata* Gill.; *M. fibula* (Bull. ex Fr.) Kühn.;
M. galopus (Pers. ex Fr.) Kummer; *M. leptoccephala* (Pers. ex Fr.) Gill.;
M. olivaceo-marginata (Masse) Masee; *M. oortiana* Hora; *M. sanguinolenta*
 (Alb. & Schw. ex Fr.) Kummer; *M. speirea* J. Lange; **Naucoria escharioides*
 (Fr. ex Fr.) Kummer; *Nolanea cetrata* (Fr. ex Fr.) Kummer; *N. mammosa*
 (L. ex Fr.) Quél.; *N. staurospora* Bres.; *Paxillus involutus* (Batsch ex Fr.) Fr.;
Pluteus salicinus (Pers. ex Fr.) Kummer; *Psathyrella candolleana* (Fr.) Maire;
 **P. fatua* sensu Lange; *P. microrhiza* (Lasch) Konrad & Maubl.; *Tricholoma*
carneum (Bull. ex Fr.) Kummer; *Tubaria furfuracea* (Pers. ex Fr.) Gill.
Bjerkandera adusta (Willd. ex Fr.) Karst.; *Coriolus versicolor* (L. ex Fr.)
 Quél.; *Fistulina hepatica* Schaeff. ex Fr.; *Ganoderma applanatum* (Pers. ex
 Wallr.) Pat.; *G. lucidum* ([W. Curtis] Fr.) Karst.; *Haplophthium nidulans* (Fr.)
 Karst.; *Laetiporus sulphureus* (Bull. ex Fr.) Murr.; *Meripilus giganteus* (Pers.
 ex Fr.) Karst.; *Phaeolus schweinitzii* (Fr.) Pat.; *Polyporus squamosus* Huds.
 ex Fr.; *Rigidoporus sanguinolentus* (Alb. & Schw. ex Fr.) Donk; *R. ulmarius*
 (Sow. ex Fr.) Imaz.; *Schizopora paradoxa* (Schrad. ex Fr.) Donk;
Chondrostereum purpureum (Pers. ex Fr.) Pouz.; *Coniophora puteana*
 Fr.; *Merulius tremellosus* (Schrad.) Fr.; *Stereum gausapatum* (Fr.) Fr.;
S. hirsutum (Willd. ex Fr.) S.F. Gray; *S. sanguinolentum* (Alb. & Schw. ex Fr.)
 Fr.;
Bovista plumbea Pers. ex Pers.; *Crucibulum laeve* ([Huds.] Rehl) Kambly
 (= *C. vulgare*); *Vascellum pratense* (Pers.) Kreisel [= *Lycoperdon hiemale*];
Calocera viscosa (Pers. ex Fr.) Fr.; *Dacrymyces stillatus* Nees ex Fr.;
Auricularia auricula-judae Schroet;
Daldinia concentrica (Bolt. ex Fr.) Ces. & de Not.; *Nectria cinnabarina*
 (Tode ex Fr.) Fr.;
Botryosporium pulchrum Corda.

APPENDIX – NEW FUNGUS RECORDS

During the past few years a number of scattered records of fungi, hitherto unrecorded from Bedfordshire, have accumulated and these have been brought together below.

BASIDIOMYCETES

Agaricales

- **Agaricus nivescens* (Møll.) Møll. – Grovebury Sandpits, D A Reid, 28 July 1957.
- +*Lentinus lepideus* (Fr. ex Fr.) Fr. – On railway sleepers, Grovebury Sandpits, D A Reid, 28 July 1957.
- **Russula rosea* Quéf. – Heath and Reach, D A Reid, 29 August 1965.

Gasteromycetales

- **Bovista pusilla* Batsch ex Pers. [= *Lycoperdon ericetorum* Pers.] – Grovebury Sandpits, D A Reid, 28 July 1957.
- **Geastrum striatum* DC. [= *G. bryantii* Berk.] – Fen Farm, Deepdale, Sandy, C M Dony, 23 October 1973.

Uredinales

- **Melampsorella symphyti* Bub. – II on *Symphytum* sp., Whipsnade Park, R W G Dennis, 17 June 1973.
- +*Uromyces dianthi* (Pers.) Niessl – On carnation, Bedfordshire, 1957.

Ustilaginales

- **Ustilago tragopogonis-pratensis* (Pers.) Rous. – On *Tragopogon* sp., Kempston, M J Marriott, 13 May 1957.

ASCOMYCETES

Discomycetes

- **Plicaria leiocarpa* (Currey) Boud. – Stockgrove Park, A Outen, 21 November 1976.
- +*Pseudopeziza trifolii* (Biv.-Bern.) Fuckel – Common in Bedfordshire on lucern, 1957.

Pyrenomycetes

- **Ophiobolus acuminatus* (Sow. ex Fr.) Duby – On *Cirsium arvense*, Whipsnade, D A Reid, 18 April 1961.
- **Rosellinia thelena* (Fr.) Rab. – Heath and Reach, D A Reid, 18 April 1963.

PHYCOMYCETES

- **Peronospora parasitica* (Pers. ex Fr.) Tul. On Stocks, Bedfordshire, 1957.

FUNGI IMPERFECTI

- **Blennoria (Fusicoccum) bacillaris* (Sacc. & Penz.) Petrak – Woburn Sands, D A Reid, 19 April 1963.
- **Endostilbum albidum* (Berk.) Reid. [= *Sirobasidium cerasi* Bourd. & Galz.] – On *Quercus*, Heath and Reach, D A Reid, 19 October 1963.
- **Heterosporium echinulatum* (Berk.) Cooke – Causing a more serious disease of carnations than usual in Bedfordshire during the autumn of 1956 and winter of 1956/57.
- **Zygophiala jamaicensis* Mason – Present on carnations in a Bedfordshire nursery in 1957, causing a greasy leaf blotch.

* = New County Record

+ = Confirmation of old record

RECORDERS

- Meteorology*: Mr. A.W. Guppy, 22 Poplar Avenue, Bedford.
- Geology and Fossils*: Mr. K.G. Baker, 34 Lorraine Road, Wootton, Bedford.
- Mammals*: Mr. D. Anderson, 51 Springfield Crescent, Harpenden, Herts.
- Birds*: Mr. B.D. Harding, 66 Salters Way, Dunstable, Beds.
- Amphibians and Reptiles*: Miss H.M. Webb, 4 St. Helena Road, Bedford.
(Mr. C. Banks, 72 Spencer Road, Luton, Beds. —for 1976)
- Fish*: Mr. T. Peterkin, 129 Manor Road, Barton-le-Cley, Bedford.
- Slugs, Snails and Leeches*: Mrs. E.B. Rands, 51 Wychwood Avenue, Luton, Beds.
- Dragonflies*: Dr. N. Dawson, The Old House, Ickwell Green, Biggleswade, Beds.
- Grasshoppers and Crickets*: Mr. D.G. Rands, 51 Wychwood Avenue, Luton, Beds.
- Bugs*: Dr. B.S. Nau, 15 Park Hill, Toddington, Dunstable, Beds.
- Butterflies*: Mr. A.J. Martin, 18 Aragon Road, Amptill, Bedford.
- Moths-macro*: Mr. V.W. Arnold, 96 St. Augustines Avenue, Luton, Beds.
- (Butterflies and Moths*: Mr. W.J. Champkin, 59 Rosamond Road, Bedford —for 1976)
- Bees, Wasps, Ants etc.*: Dr. V.H. Chambers, 50 Shefford Road, Meppershall, Shefford, Beds.
- Ladybird Beetles*: Mr. J.R.A. Niles, 10 Kentmere Close, Kempston, Bedford.
- Woodlice, Centipedes and Millipedes*: Dr. A.J. Rundle, 29 Burlington Avenue, Kew, Richmond, Surrey.
- Flowering Plants, Ferns and Fern Allies*: Dr. J.G. Dony, 9 Stanton Road, Luton, Beds.
- Mosses and Liverworts*: Mr. A.R. Outen, 26 Lyall Close, Flitwick, Bedford.
- Lichens*: Mrs. F.B.M. Davies, 4 Chaul End Road, Caddington, Luton, Beds.
- Fungi*: Dr. D.A. Reid, The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.